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The History of Civilization

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HISTORY OF CIVILIZATION. By Hutton Webster, Stanford University. Boston: D. C. Heath and Company, 1940. pp. xx, 1052, 32 plates, maps, plans, and text-illustrations. 4 dollars 50 cents.

THE fruits of specialists' studies on particular phases and incidents in humanity's past have come to fill oppressive rows of periodicals and monographs in every city and university library, not to mention the even drearier cases in a thousand museums. What is the use of this accumulation of snippets, if one cannot extract from them a comprehensive view of what has actually happened, of man's enduring achievement on this planet. In composite histories like the Cambridge series, or Harmsworth's, experts have cooperated, more or less harmoniously, in condensing this indigestible mass. Few bold spirits have followed H. G. Wells in attempting to popularize it as an individual's synthetic view. Yet such works of vulgarization are surely necessary if the results of historical research are to have any wide appeal. Such must naturally be compilations in that the author will have to marshal other people's conclusions, instead of devoting his time to the more exciting task of original research among the primary sources. He will always be open to attack by the specialist who can find inaccuracies of detail in his own narrow field. But such a pedantic critic simply condemns himself and his kind for failing to make their conclusions significant and accessible to an intelligent compiler. In criticizing the latest effort at synthesis, that of Dr Hutton Webster of Stanford, I shall diligently avoid all points of detail.

Indeed let me say at the outset that, in the sections of which I am competent to form an opinion, the author has succeeded well in his modest aim and rendered a real service to history itself. He has maintained a remarkably high standard of factual accuracy. The authorities cited in the bibliography are reliable and so up to date as to include C. F. C. Hawkes' *Prehistoric Foundations of Europe* (1940). The author has made a heroic effort not to overweight the narrative with ephemeral political events, while doing justice to those of enduring import. He has swept into his net art and religion, philosophy and science. Above all he recognizes archaeology as something more than

a humble auxiliary science, as the key indeed that has opened up to history whole millennia and vast territories. Finally I cannot help congratulating the author on the degree of objectivity reached in his account of the Soviet Union and—less fully—of the Third Reich. For, be it remembered, the book covers everything from the Ice Age to September 1939! If then in the succeeding paragraphs I adopt a critical attitude, I do not wish thereby to disparage the value of this stupendous undertaking.

Nevertheless I do feel that an individual synthesis ought to give a clear impression of what Breasted meant by ' the Conquest of Civilization '; of the cumulative achievement of the millennia of effort it seeks to survey. This ' History of Civilization ' is frankly written from ' the point of view of an inheritor of Western or European Civilization ' without trying ' to discern in the process a movement predetermined and inevitable '. Even so, it must aim at presenting this civilization as itself the heir of the traditions and achievements of the Mayas and Sumerians, the Egyptians and Chinese, and of the nameless pioneers who have left no written records. To do this it should make a fuller and more appreciative use of archaeological evidence, not only to replace literary sources where these fail, but also to correct the one-sidedness of the picture these too often give. While it is an admitted weakness in prehistory that it can never reach the individual, being bound to deal only with classes of objects, archaeology in general gives a fuller and deeper picture of the past than can be gleaned from literary sources alone. At least in the Ancient East, as in the European Middle Ages and in China, writing was the prerogative of a tiny minority of clerks in a world of illiterates, so that written documents are apt to emphasize unduly the culture of this class. Even in the democratic civilization, mirrored in Athenian literature, women and slaves, as Toynbee reminds us, had no part. Modern archaeology on the other hand is less restricted. Of course in certain phases of prehistory and history—in the Bronze Age of Wessex and in Old Kingdom Egypt for example—the monuments and relics reflect almost exclusively the life of a small upper class. But that is felt as a defect. Indeed, to the chagrin of the old fashioned collectors and connoisseurs, it is exceptional; for the richest tombs have so often been pillaged and the most costly objects melted down, that the great mass of our data are provided by vulgar cemeteries and everyday objects so common that they were lightly discarded. Thanks to recent excavations Celtic Britain is no longer represented solely by chariot burials and knightly ornaments,

but also by villages like Glastonbury and farms like Woodbury. The Indus civilization is known exclusively from the ruins of bazaars, private houses and industrial tenements, supplemented by such public buildings as a bath-house and a granary. Minoan civilization does not mean just the palaces of Knossos, Mallia, Phaestos and Hagia Triada, but also towns and cemeteries like Gurnia, Mochlos and Pseira. Even classical Greek art is not represented by the masterpieces of a Phidias so much as by tomb-stones and pottery-vases. The latter were of course cheap factory products, and some of the ' masters ' who painted them, judging by their names, were freedmen or slaves.

I suspect too that archaeological periods would give a better framework for exhibiting the interrelations between the episodes in the grand drama than the conventional political scheme here adopted. Webster has in fact merely prefixed to the traditional sequence of Classical Antiquity—Middle Ages—Modern Times a prelude in Prehistory, America, China and the Ancient East. He begins with an anthropological chapter on Culture, followed by three chapters on Prehistory, from the racial and linguistic, archaeological and sociological standpoints respectively. After the 21 pages of chapter III covering everything from the Old Stone Age to the first Iron Age, the illiterate barbarians of Europe as revealed by prehistoric archaeology simply disappear. A chapter each is devoted to Ancient America, China, India, Babylonia and Assyria, Egypt, and the rest of Western Asia—the latter including the Hittites, the Phoenicians, the Jews and the Persians. Then we proceed in the usual order to Greece, Rome and the Middle Ages of Christendom, with a single chapter devoted to Islam inserted after those that treat of the Germans and of the Northmen and the Normans.

This arrangement fosters the illusion entertained by Spengler and Toynbee of a multiplicity of ' civilizations ', any of which can be isolated from forerunners and contemporaries and still continue to behave as a living organism. It is not dispelled effectively by appending to the relevant chapters, as Webster does, a paragraph headed ' The Legacy of Egypt ', ' Influence of Islamic Culture ', and so on.

The illusion would disappear of itself without such external comments were science as adequately treated in earlier as in the modern periods. For, as Sarton[1] points out, ' the acquisition and systematization of positive knowledge is the only human activity that is

[1] *Introduction to the History of Science* (Carnegie Institution Publications, 376, 1927), I, 4.

pre-eminently and conspicuously cumulative'. But such treatment would have required an excursion beyond the pages of text-book histories—and perhaps beyond literary sources altogether—that our author has not risked. Mathematical and medical texts survive from about 2000 B.C. onwards, but their contents seem so childish as hardly to deserve the name of Science, until we remember that the first steps are always the hardest. But just for this reason they can be used in a popular history to illustrate our debt to the Babylonians and Egyptians. We have forgotten our own difficulties at school in mastering division and fractions when we first struggled to deal with quantities that cannot be conveniently represented by beads or counters. The Babylonian tablets and Egyptian papyri show mankind's first efforts to deal with this very problem. Unfortunately these texts have received little attention from Orientalists, who were by training inclined to prefer historical and mythological literature, and were in any case hardly competent to appreciate the true inwardness of the problems the ancient scribes were trying to overcome. It was not till a professional mathematician, Otto Neugebauer,[2] took the trouble to learn cuneiform and hieroglyphics, that a true appreciation of the mathematical achievements of the Ancient East was reached, though his results were subsequently extended and corrected by the veteran Assyriologist, Thureau-Dangin.[3] Dr Webster gives the reader no help to reach this appreciation, and so misses the chance of explaining its bearings on Greek mathematics, which in fact receive only the perfunctory notice that would be expected from a victim of ordinary 'classical education'. So he fails to show how it was the Babylonians' achievement that rescued us from our schooldays dilemma, a point worth illustrating at the cost of a digression.

One of the greatest Oriental contributions to modern science was to discover a satisfactory method of dealing with fractions. The Babylonians hit upon the device of 'sexagesimals'—fractions expressed precisely as our 'decimals' save that the base was 60 instead of 10—i.e. for $\frac{1}{12}$ instead of .05 they wrote .3,20 ($\frac{3}{60} + \frac{20}{60^2}$) and for $\frac{3}{4}$, .45 ($\frac{45}{60}$). Thereby their mastery of number was extended to the whole domain of the rational. It might have been expected that this system would have disappeared in the first century B.C. with cuneiform literature, to be reinvented *de novo* when Stevinus published his 'Disme' in 1585. Nothing of the sort. Sexagesimal fractions were taken over by

[2] *Vorgriechische Mathematik*. Berlin, 1934. Reviewed ANTIQUITY, IX, 190-4.

[3] *Textes mathématiques babyloniens*. Leyden, 1938.

the Alexandrians[4] together with astronomical data from the Babylonians, whose observatories were still functioning as late as 20 B.C. Ptolemy, for instance, uses sexagesimal fractions in his 'Almagest' and that not only for astronomical data but to express approximations to π and to square roots. In his commentary Theon works out the division of 1515.20,15 by 25.12,10 (getting 60.7,33) and extracts the square root of 4500 as 67.4,55. With the 'Almagest' they were adopted by the Arabs and came back to Europe when that work was translated from the Arabic into Latin in the 12th century. By the 14th century the idea was already being applied to the decimal notation by Bonfils of Tarascon[5] now using the 'Arabic' numerals.

But it is not often that continuity of scientific tradition over three thousand years can thus be demonstrated from written documents. Archaeology offers other data on ancient science. Modern science owes quite as much to the craft-lore handed on by hunters, farmers, potters, smiths, glass-makers and other working artisans as to the written tradition of astrologers, alchemists and medicine-men. Craft-lore found literary expression only late and at first sparsely. Before the invention of an alphabetic script artisans were almost inevitably illiterate, and even the Greek literati tended to look down upon *technai* as 'banausic'. But it found concrete expression in permanent products. Studied in conjunction with technical experts as in Lucas's *Ancient Egyptian Materials*, relics give the archaeologist as good a clue to the chemistry and geology of antiquity as alchemical tablets or papyri, for the relics disclose what substances and processes were known and used at any period, while the interpretation of literary terms is often doubtful, especially as many relevant texts are deliberately cryptogrammic. Similarly our appreciation of the Romans' engineering is enhanced by a study of their roads, aqueducts and buildings more than by reading Vitruvius.

By admitting such archaeological evidence we are really studying scientific tradition. And in the monuments and relics resulting from its applications, we can trace that tradition across Dark Ages where written sources fail and into periods before writing began, back to man's first great physico-chemical discovery—the production of fire itself.

So too archaeology provides the most reliable gauge of the extent

[4] Examples can conveniently be found in the Loeb volume *Greek Mathematical Works*, edited by Ivor Thomas, pp. 45 ff., and in Heath, *A History of Greek Mathematics*, 233.

[5] cf. *Isis*, xxv, 16–45

and intensity of intercourse between the several parts of the inhabited world which made possible the pooling of human experience—and it is the pooled experience of mankind that we inherit. Geographical knowledge in this sense cannot be measured by the writings of cloistered schoolmen or temple clerks. The Neo-Babylonian copy of a map of the world in the British Museum[6] is just as much a travesty of the 'geographical knowledge' of the 6th century B.C. as is Ibn Hauqal's map[7] of that of the 10th century A.D. Nor can one afford to rely exclusively on travellers who wrote memoirs or voyages historians happened to believe in.[8] Like most literary historians Webster places pathetic faith in such reports. He even solemnly assures us that Pian de Carpini and William de Rubruquis were 'the first Europeans to cross in the Middle Ages the deserts and mountains of Central Asia'! William, as it happens, himself reports how he found at Qaraqorum a woman of Metz who had married a Russian carpenter, a goldsmith from Paris named William Buchier and Basil, the son of an Englishman! A comparison between the jewellery from Troy, Byblos, Kish and Mohenjo-daro encourages the belief that the Parisian's fellow-craftsmen had been making equally arduous, if rather shorter, journeys three thousand years earlier. So too the rectangular seals dug up in the ruins of Sumerian cities on the Euphrates, but manufactured in the Indus valley, foreshadow the merchandize transported over greater distances by the Venetians in the 13th century. By reinstating the archaeological evidence the continuum of the oikumene, made explicit in the medieval travellers' narratives, could be displayed as an enlargement of one already implied in the Bronze Age by the 24th century B.C.

Moreover, by recasting the exposition in the framework of archaeological periods to replace the current politico-geographical basis, the progressive enlargement of that continuum could be graphically traced. No doubt at the beginning of history, in the Early Bronze Age of the Orient, the three oldest civilizations—the Egyptian, the Sumerian and the Indus—would appear so completely unrelated as to justify the purely separate treatment accorded to them throughout by Webster. For they do occupy geographically isolated areas, and each exhibits to the

[6] Republished in ANTIQUITY, IX, 312.

[7] Figured in Arnold and Guillaume, *The Legacy of Islam*.

[8] The reports of Necho's Phoenicians who, sailing westward round South Africa, noticed the sun on their right, and of Pytheas on his Atlantic voyage, were rejected as incredible.

archaeologist, as much as to the literary historian, a highly individualized physiognomy in religion, art, technology, social and economic organization. The contrast indeed can be seen in the forms of even the simplest metal tools like adzes, axes, chisels and saws.

Yet the isolation of these foci may be more apparent than real. Egypt and Sumer at least lie at the horns of Breasted's Fertile Crescent. Between them recent excavations have been revealing in prehistoric times a continuum of barbaric cultures, the interrelations of which are only gradually emerging; the excavations at Tepe Gawra and Arpachiya[9] in Assyria, at Tell Halaf and Chagar Bazar on the Khabur,[10] at Carchemish on the Upper Euphrates,[11] at Judeideh on the Orontes[12] and at Ras Shamra on the Syrian coast,[13] have already disclosed remarkable continuity from the Tigris to the Mediterranean—if its extension to the Nile be still obscure. Moreover the indications of contact between Egypt and Mesopotamia, enumerated by Frankfort[14] in 1925, have been substantially increased during the last ten years. A basalt stele discovered in the Jemdet Nasr layers at Erech (Warka)[15] is carved with figures agreeing strikingly in physiognomy, costume and armament with those depicted on the famous knife-handle from Gebel el-Arak in Upper Egypt, in which some sort of Mesopotamian inspiration has always been suspected. The sign for boat[16] on the pictographic tablets from the same Sumerian site, is again the 'foreign' boat which appears in Egypt first on the knife-handle and contemporary documents. Pictures of the same 'foreign' boat have now been found by Winkler[17] on the rocks of the wadis between the Nile and the Red Sea. Between the Indus and the Tigris the varieties of painted pottery collected by Sir Aurel Stein[18] from the oases and valleys of Iran, Seistan, and Baluchistan, though still only datable to a vague 'chalcolithic' period, may well prove to be evidence of a truly prehistoric

[9] *Asia*, 1938, XXXVIII, 536 ff.; *Iraq*, 1935, II, 1 ff. [10] *Iraq*, 1936, III, 1 ff.

[11] *Iraq*, I, 146 ff; cf. LAAA, XXIV, 130 ff. (Sakje Gözü). [12] AJA, 1937, XLI, 10.

[13] Schaeffer, *Ugaritica*, I.

[14] *Studies in the Ancient Pottery of the Near East*, I, 118–135.

[15] *Abhandl. preuss. Akad. d. Wissen., phil.-hist. Kl.*, 1933, 6; cf. Contenau in *Syria*, XVI, 532 and Scharff in *ZfÄ.*, 1935, LXXI, 90 ff.

[16] Nos. 216–7 in Falkenstein's *Archäische Texte aus Uruk*; it is depicted also on contemporary seals, cf. Scharff, loc. cit.

[17] H. Winkler, *Rock Drawings of southern Upper Egypt* (Egypt Explor. Soc., *Arch. Survey of Egypt*, 26), 1936.

[18] *Iraq*, III, p. 111 ff.; Stein, *Archaeological Reconnaissances in the Punjab and South-eastern Iran*, 1937.

continuum of cultures such as is already established in the Fertile Crescent. Some connexion before the final crystallization of the Sumerian and Harappa civilizations seems a necessary inference from the identity of several technical processes, particularly ceramic. Intercourse during historical Sumerian times is of course fully attested by the actual Indus manufactures, notably seals, found in Mesopotamia.

In the later Bronze Age of Western Asia[19] these interrelations become fully explicit in the literary record too ; here the history of the second millennium must be largely that of the interaction between the several civilized States. The Egyptian Foreign Office archives from Tel el-Amarna, and the Hittite archives from Boghaz Keui disclose a veritable society of States for all the world like the constituents of modern ' Christendom '. For all their professed exclusiveness Egypt, Hatti, Mitanni, Assur and Babylon all use, as a common diplomatic language, Babylonian written in the cuneiform script, and are related not only by commerce, but by an interchange of ambassadors, soothsayers, wives and gods. No ideological differences separated them more or even as much as sundered Protestant and Catholic States in the seventeenth and eighteenth centuries. Archaeological evidence fully justifies the inclusion in this oikumene of Crete and, later, of the rest of Greece. And the celebrated beads of East Mediterranean faience from Hungary and Wessex show how its civilization was already irradiating the barbarian fringe north of the Alps.

Then in the Iron Age we should see the enlargement of this Bronze Age circle to include the whole zone from the Straits of Gibraltar to the Oxus and the Ganges. Archaeological data can measure not only the spatial extension, but also the intensification, of intercourse in the Iron Age ; the distribution of Corinthian and Attic pottery is an index of a new sort of commerce in cheap goods produced in mass for popular consumption as compared with Bronze Age trade in which, apart from metals, luxuries for ' conspicuous consumption ' by courts and nobility predominated.[20]

For the prehistorian the colonization of the Mediterranean basin

[19] Despite the invocation by the King of Mitanni in his treaty with the Hittites in 1360, of Indra, Mitra, Varuna and the Nasastyâ—gods familiar from the Rig-Veda, the oldest hymns of the Aryans of India—intercourse between that sub-continent and the west cannot yet be demonstrated archaeologically in this period. And China, where the historical record now begins, can be linked with the Near East only by the general considerations discussed by Carl Whiting Bishop in ANTIQUITY, 1940, XIV, 301 ff.

[20] Heichelheim, *Wirtschaftsgeschichte des Altertums*, 244 ff.

by the Phoenicians and the Greeks is but the continuation of the Minoans' pioneering efforts. To the historian the empires of Assyria, Babylon, Persia and Macedon must appear more patently fulfilments of the ambitions of Sargon of Agade, Ur-Nammu and Hammurabi, but cannot be thus described when they are treated in three separate geographical chapters. Webster does indeed rightly point out how 'Alexander the Great took over both the substance and the trappings of absolute monarchy from the last Persian king; from Alexander absolutism descended to the Graeco-Macedonian kings who reigned after him; and from them it passed on to the later Roman emperors and to the rulers of medieval and modern Europe'. To bring out the continuity of civilization it would be better and more accurate to elaborate the point when dealing with Hellenism. The Ptolemies' realm not only coincides geographically with Ancient Egypt, it preserves the Egyptian language, script, arithmetic, economic centralization, and bureaucracy in unbroken descent from the Memphite monarchy of the third millennium, and just for this reason the Ptolemies are invested with the divinity that belonged to Pharaoh from the days of Menes. The Seleucid Empire is an enlarged descendant of that of Sargon of Agade. Throughout the period of Greek domination the Babylonian temples continued to function as universities, and the priestly astronomers continued to develop their science on traditional lines. And in cult an Antiochus steps into the place in the pantheon left by Naram-Sin, Shulgi and Hammurabi.[21] Indeed in his titles—Sōtēr, Epiphanēs, Euergetēs—a Hellenistic monarch claims the sociological role and ideological position of his forerunner who had been appointed by Enlil 'to make justice manifest in the land, to destroy the wicked and evil-doer and to prevent the strong oppressing the weak'. This place too the Caesars inherited with their kingdoms from Antiochus and Ptolemy.

At the same time the contrast between the Iron Age and the Bronze Age need not be ignored. One tremendous innovation, best illustrated from literary sources, is the emergence of philosophers and religious reformers in China, India, Iran, Palestine and Greece. Individuals who did not belong to the established priesthoods ventured to receive and publish to the people personal revelations, or even to appeal to facts of normal experience that anyone might verify and to the reason that is common to all men. They invoked one god, lord of all, instead

[21] McEwan, *The Oriental Origin of Hellenistic Kingship*. Chicago, 1934. (O. I. *Studies*, 13).

of the multifarious tribal deities of the State religions. They promised salvation not in return for magic ceremonies and the performance of rituals, but for just behaviour in a society that comprised all the faithful, if not all men, not merely fellow tribesmen and the subjects of the same State. A history of civilization is not indeed bound to explain why Confucianism, Buddhism, Zoroastrianism, the Prophetic Movement and Ionian philosophy start so nearly at the same time[22]—in archaeological chronology at least. By scattering the prophets and philosophers over four chapters the ' History ' before us does not let the reader see that there is a problem. By introducing them in the Iron Age they would appear in a significant context.

For the Iron Age is distinguished from the Bronze Age by a new economy too, which archaeology and literary history can alike help us to grasp. In a general way bronze equipment was the prerogative of a relatively small ruling class and its dependants. In barbarian Europe that is clear enough from the Bronze Age graves of Wessex and Denmark, as Brøndsted and Piggott have recently emphasized. In Greece it is equally clear that the long rapiers of Mallia, Mycenae, Dendra and Zafer Papoura are aristocratic weapons. But here the epics confirm the deductions of archaeology. Homeric warfare resolves itself into a series of single combats between champions, the ill-armed masses remaining passive spectators. And of course their political influence was proportionate to their military value. In the Oriental Bronze Age the use of metal was doubtless much more widespread. Still in Egypt mining was always a State monopoly ; at least under the Old Kingdom only the royal army and craftsmen working for the court and the feudal nobles enjoyed a full metal equipment from its produce. Even in Mesopotamia where trade was very effectively organized—not without frequent support from the State[23]—metal was very costly. In the time of Hammurabi a shekel of silver would purchase[24] only 120 to 150 shekels of copper, while for the same sum you could only get perhaps $14\frac{1}{2}$ shekels of tin. Under the Neo-Babylonian Empire iron cost only about half as much (225 shekels for one shekel of silver) and the

[22] How nearly we cannot say while the date of Zoroaster for instance can be put anywhere between 1000 and 600 (Webster) or even later.

[23] Heichelheim, op. cit., 175-205 etc., maintains that throughout the Ancient East the despotic monarchs controlled foreign trade as completely as Totalitarian States do today ; Speiser, on the contrary, contrasts the totalitarian regime of Egypt with 'a social order founded on the recognition of personal rights ' in Mesopotamia, *Nature*, 1940, CLXVI, 707.

[24] Meissner in *Abhandl. preuss. Akad., phil.-hist. Kl.*, 1936, 1.

price of copper fell substantially in sympathy. It was not only in barbarian Europe that the new metal for the first time ' put into the hands of every farmer cheap and durable tools for tree-felling and cheap but efficient weapons for warfare '. The new equipment put an end to the unchallenged supremacy of the hero with his bronze rapiers and the royal army equipped by State arsenals.

But if the suggested rearrangement would help to disclose continuity, it would also compel the historian to face the fact of Dark Ages. Not in single States alone, but over large areas of the oikumene, history seems to be interrupted. Not only do the literary sources dry up; irruptions of barbarians from without combine with internal decay to disrupt the whole economic system, destroy accumulated capital, and consign to death by famine or massacre no insignificant fraction of the civilized population. In a chaos of violence the tradition of culture itself seems threatened with extinction. During the Oriental Bronze Age such symptoms can be detected in Egypt in the First Intermediate Period (ending about 2000 B.C.) and again with the Hyksos invasion and in Mesopotamia after the collapse of the Dynasties of Agade and Babylon I. Yet it is doubtful whether these disturbances and dislocations were contemporary in the two provinces[25] or sufficiently general to deserve the name of Dark Ages; in neither area was the literary, scientific or economic tradition completely interrupted so that there was no relapse into barbarism and illiteracy, but after each interruption cultural development started again where it had left off. In India on the contrary the Harappa culture seems to have been so nearly extinguished in a still unexplained catastrophe that we can prove the local survival of some of its technological traditions only by ethnographic fossils.

In any case the Bronze Age ended in the Near East in a real Dark Age beginning with the ' Dorian Invasion ' of Greece and the Land and Sea Raids on Egypt and Hither Asia. Barbarians wiped out the Minoan civilization of Crete and the Mycenaean culture in mainland Greece. The Hittite Empire in Anatolia disappears. In Babylonia the Kassite Dynasty ends as barbarian Aramaeans filter in, and the

[25] Till documents recently discovered at Mari imposed a drastic reduction on current dates for the First Dynasty of Babylon and all the earlier chronology of Mesopotamia, an approximate synchronism between the Hyksos invasion of Egypt and the Kassite infiltration into Babylonia seemed plausible. But on Sidney Smith's (*Alalakh and Chronology*, London, 1940), latest interpretation the First Dynasty came to an end only fifteen years before the Hyksos were expelled.

land becomes for a time subject to Assyrian overlordship. Merneptah and Rameses indeed repel the invaders from the Nile valley, but Egypt is so exhausted that barbarian mercenaries soon come to occupy the throne of Pharaoh itself.

In Aegean archaeology the next four and a half centuries seem indeed a Dark Age, not only by contrast to the lustre of the Mycenaean period but also by reason of the interruptions of foreign trade. Down to 1200 B.C. intercourse between 'prehistoric' Greece and the literate lands of North Syria and Egypt had been so regular that archaeological periods can be dated almost to half-centuries from the historical records. Thereafter there is such a complete lack of synchronisms that Aegean chronology is really guess work till the eighth century B.C. We simply do not know where to put the poor remains nor what should fill the dark centuries.[26] But it is really the preoccupation of Western scholars with this devastated province—which was apart from China the latest area to emerge from barbarism to a brilliant, if short-lived and shallow, civilization—that makes the whole period seem so extremely dark.

In reality the lacuna is far from universal. The Assyrian State and its component cities were flourishing, and the Assyrians had already appropriated the technical achievements, the scientific and business traditions of their southern neighbours as well as the latter's religion and cult. Sumerian and Akkadian texts were collected for the royal libraries, astronomical studies pursued in the temple observatories, particularly at Kalah. Even in Babylonia, as in previous dark ages, economic and scientific life, like cult, continued in the cities and temples albeit impaired by foreign domination and impoverishment. Neither the craft-lore of artisans nor the mercantile acumen of merchants, nor yet the traditional learning of the temple clerks, was dissipated when their cities changed masters. The same is true of Egypt; the jewellery of the 22nd Dynasty pharaohs, and the carvings of sarcophagi, show that the craftsmen had not lost their skill if their patrons had lost their taste. Finally Phoenician city-states weathered the storm physically, preserving at least the standard of civilization they had reached in the Amarna age. They could exploit and develop such Minoan-Mycenaean traditions, techniques and geographical knowledge as must have been brought by the Aegean colonists, whose importance has been so strikingly demonstrated by Schaeffer's excavations at Ras Shamra–Ugarit.

In European Greece itself more came through than could be inferred

[26] The controversy in AJA, XXXVII, XXXVIII and XLIII as to when the alphabet was introduced—1000 or 700 B.C.—is revealing.

from the Dark Age relics alone. No doubt the Minoan priest-kings and the Mycenaean feudal chivalry were alike wiped out. Such clerks as had been employed in the administration of the wealth concentrated by princes and heroes—and the archives discovered by Blegen at 'Nestor's Pylos' in 1939 prove that such had existed—naturally lost their employment. The luxury industries of the feudal courts became obsolete, and the trade that had supported them withered away. Cheap iron swords replaced costly bronze rapiers. The urban centres of manufacture and commerce thus tended to relapse into more or less self-sufficing villages. Even rural economy may have been altered by the invaders.[27] But Greece did not revert to neolithic barbarism nor even to the stage represented by the Middle Helladic townships before 1600.

The standardized techniques of viticulture and olive-growing described in Hesiod cannot be fresh discoveries by new-come barbarians, but must be a legacy from the Helladic pioneers of Greek farming. The same author's rustic calendar embodies the astronomical observations and botanical-zoological lore accumulated by an essentially Aegean peasantry. Craft traditions survived too. Throughout the Dark Age Geometric pottery is wheel-made and the technique of its slip and glaze paint is Mycenaean; only the forms and designs are strange. So Mycenaean potters had escaped destruction and taught their craft to their children and apprentices, handing on to Classical Greece the appropriate 'pre-Hellenic' names for their products. But they had to change the style of their manufactures to meet the demands of new consumers. The same must be true of other crafts. Certainly 'Crete had preserved the secret of the purple and had not forgotten metal-working'. A renowned craftsman, like Tychion, who came from Boeotia to make the shield of Ajax, might have shared his patron's fate. Humbler smiths were indispensable. And so some sort of trade must have persisted too; even the new blacksmith would have to import his iron in most parts of Greece.

Iron may perhaps at first have been carried mainly in foreign bottoms. The story of the Taphian Mentes and his cargo of iron in the Odyssey, and Herodotus' rationalized version of the Io myth both seem to reflect the conditions of the Dark Age. In Greece itself some diminution of geographical knowledge since Mycenaean times has been deduced[28] from a comparison between Hesiod's geography

[27] Heichelheim, op. cit., p. 271, suggests that the northern invaders introduced a two-field system.

[28] Burn, *The World of Hesiod*, but cf. p. 11 above.

and Homer's. That does not mean that Minoan maritime and commercial experience had been lost. At worst it had been transferred to the Levant, whence it was brought back by the Phoenicians presumably together with the alphabet between 1000 and 700 B.C. Perhaps, however, the success of the Pythia in guiding overseas colonization, if any reliance be placed in Delphic claims, was due to the conservation by Apollo's priesthood of information gathered by Minoan merchant captains and Mycenaean pirate chiefs. And the Dipylon ships seem to be Late Helladic craft with a ram added.[29]

Finally, that sparks of Minoan art gleamed through the Dark Age is evident from the Homeric poems themselves. So the Hellenes did not have to create miraculously out of sheer barbarism the foundations for classical technique, science, economy and art. The intruders had not succeeded in demolishing entirely the Minoan-Mycenaean fabric; they had lopped off excrescences that were not firmly established on a wide popular basis.

This problem of discontinuity can hardly be adequately presented, still less solved in a 'History' which has already carried the story of the Ancient East down to the fourth century and wound it up before the Aegean is reached, which moreover allows only two pages to the Minoan and Mycenaean civilizations. Nor is this deficiency entirely made up when the problem recurs in the Dark Age of Western Europe, after the break-up of the Roman Empire. The role of Byzantium and of the Arabs in the transmission of the Classical tradition is indeed duly stressed. But the reader might think that Western Europe, apart from the Church, relapsed completely into a Hallstattian barbarism. Of course that is an exaggeration. For instance some of the technical traditions established under the Empire survived; the glass-houses in Gaul and Germany did not go out of business altogether. The medieval artist inherited so much of the Greeks' innovations in representing the human form as had been assimilated by Provincial potters and Legionary masons; he did not therefore go back to the style of the Warrior Vase or the Shaft Grave stele! But Dr Webster may perfectly well retort that he had no space for all this. And in any case I am supposed to be writing a review and not a History.

[29] Cohen, AJA, XLII, p. 194.

More about Querns

by E. Cecil Curwen

A TENTATIVE account of the typology and development of British querns, or hand-mills, was attempted in a former article in Antiquity,[1] since which a few fresh points of interest have arisen. So far as the writer is aware, nothing said in that paper needs serious modification, and the views expressed seem to have met with general approval, with one possible exception.

The Origin of the Rotary Quern

The suggestion put forward that the rotary quern may have been developed from the donkey-mill, rather than the reverse, did not appeal to one reviewer, though he gave no reasons for his difficulty in accepting it. Since a principle of economic development may be involved, it may be worth while to consider the probabilities again—for, indeed, there is little in the way of actual evidence to go on. Donkey-mills were large revolving mills that were turned by harnessing donkeys to radially-projecting levers. They were a product of urban civilization, in which they stood for food-production on a commercial or industrial scale. A quern, whether of the saddle or rotary variety, was an instrument of peasant-culture, that is, of individual food-production. The first application of the rotary principle to corn-grinding was such a profound departure from existing practice that it cannot well be regarded as a normal development from the immemorial saddle-quern, the movement of which was oscillatory. It is clearly not the product of a peasant's mind, but of an inventive genius such as Greek civilization later produced in the person of Archimedes ; moreover the only comparable piece of mechanism that already existed was the potter's wheel, which is acknowledged as having been a product of urban civilization as opposed to peasant culture. In an urban culture, one may therefore ask, which stimulus is more likely to induce an educated man to invent a piece of machinery—the well-being of poor country peasants whom he seldom sees, or the prospect of gain derived from the

[1] Antiquity, 1937, xi, 133–51.

wholesale milling of corn on a commercial scale? If the brilliance of his invention expended itself on a mill no larger than a hand-mill, he would be little better off than if he continued to employ large numbers of saddle-querns. Surely it is only to be expected that the first product of the application of the new principle on a commercial scale should be a large mill, specially suited to the purpose for which it was invented. When the donkey-mill had become well-established, it would be natural for village craftsmen to copy the principle on a smaller scale, and so to turn out rotary hand-mills for the peasants.

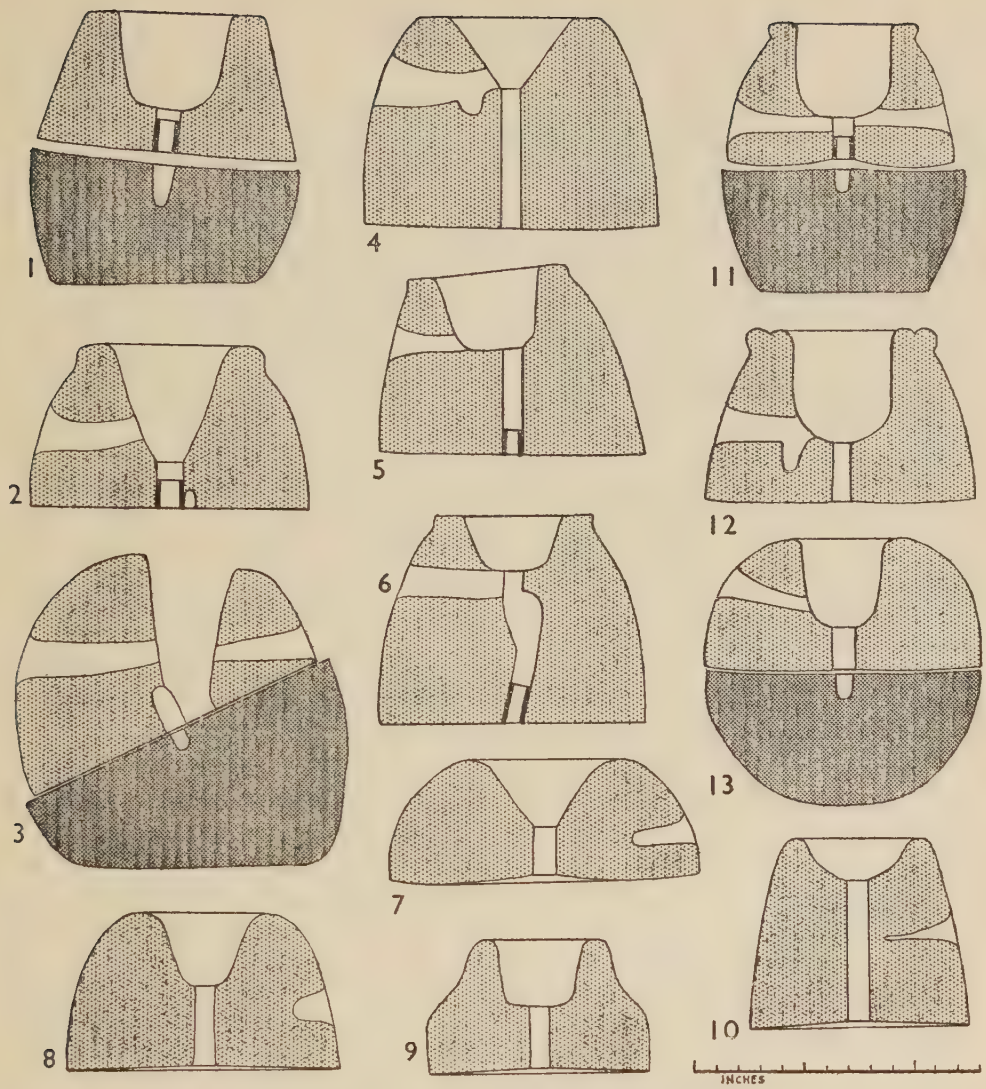
Literary evidence favours this view, so far as it goes, for Greek donkey-mills are referred to as early as 400 B.C., while rotary querns appear first in Virgil in the first century B.C.; negative evidence here, however, might be regarded as of even less value than usual, did we not know from literary sources that the Romans used mortars for grinding corn at least as late as the first century A.D. Finally, rotary querns of a form that suggests derivation from the tall and narrow donkey-mills, were brought to Britain by Iron Age B folk, whose La Tène culture owed much to Greek sources; and so far as archaeological evidence is available this quern was not introduced by the earliest waves of La Tène invaders (third century B.C.), but during a later phase of their influence upon southern Britain, perhaps about 100 B.C. If, therefore, it had been available in Greek Massilia at an earlier date, presumably it might have reached Britain with the first La Tène immigrants. In Denmark, which received neither La Tène nor Roman invaders, the rotary quern did not appear till the third century A.D.[2]

In the writer's opinion all lines of inference, including consideration of economic probabilities, point to the rotary quern having been derived from the donkey-mill, and not *vice versa*; moreover they suggest that the rotary principle in milling may have been one of the contributions of Greek culture to modern civilization.

The Hunsbury Type (figs. 1–13)

The general principles suggested in my former article as governing the typology and development of British querns still seem to hold good, in spite of the fact that during the Roman period a considerable variety of types make their appearance. On the whole, however,

[2] Antiquity, 1938, xii, 151. According to Prof. R. A. S. Macalister saddle-querns had not yet been superseded by rotary querns in Palestine in the time of Christ (*A Century of Excavation in Palestine* (1925), 233), and yet the donkey-mill was already known, for it is referred to in Matthew, xviii, 6 (μύλος ὀνικὸς).



FIGS. 1–13. QUERNS OF HUNSBURY TYPE

1–6 Hunsbury (Iron Age AB). (Northampton Museum).
7 Shrewsbury Museum (local).
8 Buxton (late first century A.D.) (Buxton Museum).
9, 10 Melandra Castle (A.D. 80–400). (Buxton Museum).
11 Thurmaston, near Leicester (Leicester Museum).
12 Leicester Museum; no history.
13 Leicester Museum: upper stone, no history; lower stone from Holwell (Leics.); association probable, but uncertain.
1, 2, 5, 6, 11 Iron sleeves *in situ*.
Lower stones, darker stippling.

these variations introduce unimportant features which do not prevent the specimens in question from being assigned to their probable position in the developmental series, under the guidance of the principles already suggested.

One important type of pre-Roman quern—the Hunsbury type—was alluded to, but not illustrated, as the writer had not at that time had an opportunity of examining the fine series that is preserved in the Northampton Museum. That lack has now been remedied.

The querns found in the Iron Age AB hill-fort of Hunsbury, near Northampton, include at least sixteen complete upper stones as well as a few lower stones. They form a remarkably homogeneous series, all the specimens except one, which is of normal Wessex type, presenting the same general features. The upper stones are high and narrow, about a foot in diameter at the base, from 6 to 10 inches high, and tapering to a width of 7 or 8 inches at the summit. The latter is usually flat, and surrounds a basin-like cavity (or hopper), 4 or 5 inches in diameter and 3 or 4 inches deep. Less frequently this cavity is funnel-shaped. From the bottom of the hopper a straight cylindrical boring, or feed-pipe, about one inch in diameter, extends to the base of the stone and opens in the centre of the grinding-surface. In nine instances the lower end of this boring is furnished with an iron sleeve, which was intended to ride round the spindle which projected from the centre of the lower stone (FIGS. 1, 2, 5, 6, 11). In one case a piece of an iron spindle remains jammed in the boring of an upper stone, and in another the base of an iron spindle remains bedded in its socket in a lower stone. The handle-socket is cut in the side of the upper stone, runs in horizontally, and opens into the lower part of the hopper, or less frequently into the upper part of the feed-pipe.

In every case the grinding surface is as nearly as possible quite flat, and not concave as in the contemporary southern English querns of Wessex and Sussex. In two cases there is gross asymmetry in the boring of the hopper or of the feed-pipe (FIGS. 5, 6),[3] and in two more a separate socket has been provided for the spindle (FIGS. 2, 3).

The lower stones have spindle-sockets in the centre of the grinding surface, and are never completely perforated. They are 5 to 6 inches thick, and the grinding surfaces are flat. One stone is so asymmetrical that if it lies on its base the grinding surface is tilted at an angle of 25 degrees from the horizontal (FIG. 3).

[3] It is difficult to see how a quern with an obliquely set spindle-socket like that of Fig. 6 could have revolved at all. The whole thing looks amateurish.

The Hunsbury type of quern thus differs in two important respects from its contemporaries in Wessex and Sussex: (1) the grinding surfaces are flat, instead of being convex in the lower stone and concave in the upper; and (2) the method of mounting the upper stone on the lower follows a different principle.

In the normal method, which will be described more fully below, the weight of the upper stone is transmitted to the spindle by way of a bridge, or *rynd*, of wood or iron which is fixed across the perforation of the upper stone and rests on the point of the spindle. In the Hunsbury querns there is no rynd at all, nor was there room for one in the excessively narrow feed-pipe. Instead, the weight of the upper stone rested directly on the grinding surface of the lower stone, and the function of the spindle was merely to keep the upper stone centred. One can only think that this principle of working must have been employed experimentally, and that owing to its defects it did not long survive. The obvious defect is, of course, the difficulty of feeding the grain past the iron sleeve and spindle which almost completely blocked the outlet of the feed-pipe. The separate spindle-sockets in FIGS. 2 and 3 may have been added to obviate this trouble, but with a wider aperture and a properly adjusted rynd no difficulty of this kind occurs. One might also anticipate that, with the upper stone resting directly on the lower, there is no very obvious inducement for the grain to insinuate itself between them. Perhaps it may have been for this reason that one performer hopefully tilted the whole machine over at an angle of 25 degrees, as already described. We say 'hopefully', but FIG. 3 looks more like a counsel of despair.[4] With the upper stone properly suspended and adjusted this difficulty does not arise.

Querns of Hunsbury type are fairly common in Leicestershire. Of specimens in the Leicester City Museum one is a complete quern consisting of upper and lower stones, with iron sleeve and two handle-sockets, from near Thurmaston (Leicester), but without dating associations (FIG. 11). There is also an upper stone from a late pre-Roman Iron Age pit at Harston in northeast Leicestershire; and a lower stone from Holwell which looks as if it may fit another local upper stone with no history preserved (FIG. 13). Yet another local upper stone, without history, has a moulded summit (FIG. 12).

Four specimens that appear to belong to this type (FIGS. 9, 10),

[4] Lower stones that are tilted at an angle to the horizontal are not infrequent; a possible explanation is that they may have been the result of an attempt to encourage the meal to emerge on one side of the quern, instead of all round it.

come from Melandra Castle, Derbyshire (Buxton Museum), which was occupied from about A.D. 80–400. No closer dating seems to be available, but the type may be presumed to be early. Another, from Buxton, dated about A.D. 90, differs only in having a short, non-perforating handle-socket (FIG. 8). Finally, one from Bourton on the Water (Glos.) is in the Cheltenham Museum. Many others no doubt exist, and a distribution-map will be an advantage if it can be compiled.

The Puddingstone Type (figs. 14–24)

There is a series of querns made of Hertfordshire puddingstone, or conglomerate, which look as if they may derive, at least in part, from the Hunsbury type.

The upper stones are bun-shaped, or conical with convex sides, and some show a rather characteristic carination an inch or more above the base (FIGS. 17, 20, 22). They lack the distinctive flat summit, and the hopper, which may be bag-shaped or funnel-shaped, tends to merge with the short and rather narrow feed-pipe, which is always circular and seldom more than one inch across. No iron sleeves have been noted so far. The diameter of the stones is from 10 to 12 inches, and the height from 3 to 5 inches. The grinding surface is nearly flat, being at most very slightly concave. Handle-sockets when present are horizontal, but in only one case does one perforate into the hopper.

The lower stones are also hemispherical (FIGS. 23, 24), so that one must assume that the round base[5] was bedded in clay, perhaps up to the level of the grinding surface. In this way the collection of the meal after grinding might be facilitated. There is the usual central socket for the spindle.

I have notes of 16 specimens of this type of quern, 12 of which are upper stones, and 4 lower. Their distribution is as follows :—Richborough (1), Canterbury (1), Oldbury hill-fort (1), Maidstone Museum (4—provenance uncertain), Luton (4), St. Albans (1), Leicester (1), Thetford (1), Houghton, Hunts., (1), and Hardham, Sussex, (1).

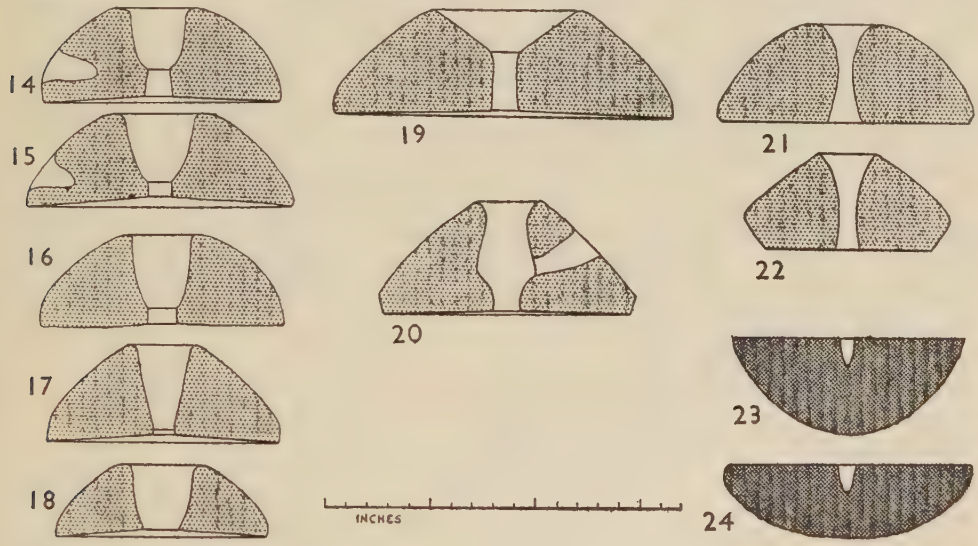
The uniformity of material, and (within limits) of form, point to the type having been most probably the product of a single Hertfordshire firm. Where datable associations are available they are always Roman ; the specimen from Hardham (Sussex)—the only one having a perforating handle-socket—can be dated between A.D. 50 and 150. Moreover the distribution suggests the use of Watling Street as a trade-route.

[5] The Welsh have a special term, *breuan dinfoel*, for a round-bottomed quern.

The form of these querns lends little encouragement to the view that they were mounted with a rynd in the normal way. It seems, perhaps, more probable that they may have been mounted in the Hunsbury manner, but with wooden spindles and no sleeves. This might be expected to work more satisfactorily, and to offer less resistance to the entry of grain.

The Origin of the Hunsbury Type

The Puddingstone type of quern appears to be later than the Hunsbury type, and to be a derivative from it. As was pointed out



Figs. 14–24. Puddingstone Querns

14, 15, 18, 21 Luton (Luton Museum).
16 Thurmaston, near Leicester (Leicester Museum).
17 St. Albans (Luton Museum).
19 Richborough.
20 Hardham, Sussex (A.D. 50–150). (Lewes Museum).
22, 23 Maidstone Museum (local).
24 Thetford, Norfolk (Luton Museum).
Lower stones, darker stippling.

in my former article, some of the Roman and post-Roman querns of northern England, and especially of Scotland, appear also to have been derived from the Hunsbury type by a process of progressive widening and flattening. But whereas the flat grinding surfaces are a constant

feature of these derivatives, it is quite uncertain how far the Hunsbury method of mounting was retained—either in iron or in wood. Ultimately there is likely to have been a reversion to what may be called the normal method, viz., the use of a rynd. In any case the modern Hebridean querns made use of the rynd.

With the exception of the Puddingstone type, tall querns with flat grinding surfaces are rare south of the Thames and Bristol Channel. A specimen from Ham Hill, Somerset (Taunton Castle Museum) might perhaps represent an early stage in the differentiation of the type. One of these (FIG. 24 of my former paper) has the external form of the pre-Roman Wessex querns, but the grinding surface is almost flat, and there is a narrow, cylindrical feed-pipe, but no hopper. As usual in Wessex, the handle-socket is lateral and does not perforate. Another quern from the same site, of cylindrical form, has a nearly flat grinding-surface, but the circular feed-pipe is wider, and expands towards the lower end. There is also a lower stone belonging to a similar quern. These three specimens are not much to found an argument upon, but they do hint at the possibility that the cardinal features of the Hunsbury type may have begun to take shape in western Wessex, and spread north with the expansion of the Iron Age B-culture. In support of this view is the apparent absence of any other type of pre-Roman rotary quern in the Midlands.

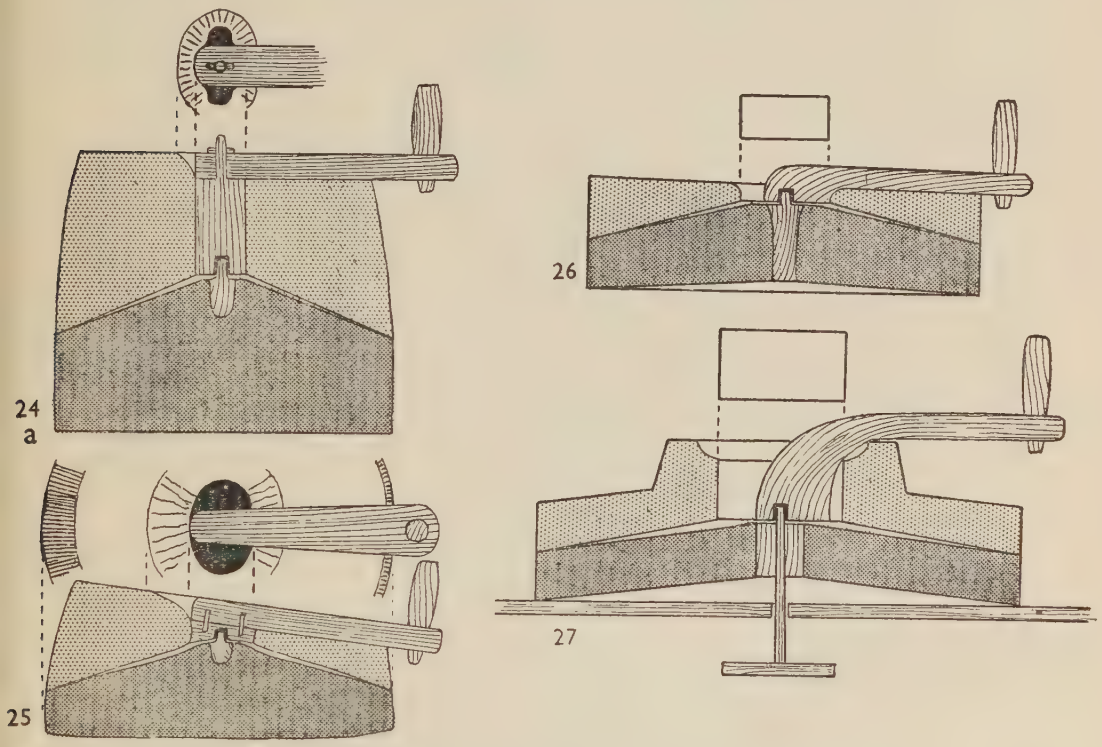
THE MOUNTING AND USE OF QUERNS
(PLATES II, III, FIGS. 24a–27)

No study of an ancient implement is complete without some experience of its actual use. The writer still hopes one day to fell a tree with a flint axe, to till a patch of ground with a flint hoe, and to reap it with a flint sickle. But before these experiments can be made the vanished wooden parts of the various implements have to be reconstructed from such evidence as is available.

In the case of querns this is not very difficult, as the general principle by which the upper stone was suspended over the lower has not varied in its essentials from the iron fittings of early slave-mills to those of modern mill-stones, while their wooden counterparts which were once possessed by the hand-mills survive in the modern querns of the Hebrides. It is only the adaptation of the principle to individual varieties of quern that may present some difficulty.

In southeastern England there was an unbroken evolution of a single quern-type from the Iron Age down to the latter part of the

Roman period. The Sussex Archaeological Society is happily in possession of four querns representing different stages of this sequence, three of them having good dating associations. In two of these implements both upper and lower stones are fortunately preserved unbroken.[6] These querns will be referred to here as nos. 1 to 4 (PLATES II, III, and FIGS. 24a–27).



FIGS. 24a, 25–7. QUERNS RESTORED AND REMOUNTED

24a Quern no. 1—The Trundle (before 50 B.C.).
25 Quern no. 2—Iver, Bucks (?) (type, first century A.D.)
26 Quern no. 3—Hassocks, Sussex (prob. second century A.D.)
27 Quern no. 4—Thundersbarrow Hill, Sussex (fourth century A.D.)
Lower stones, darker stippling ; partly diagrammatic. (Lewes Museum).

Here was an ideal series for studying the corresponding development of the vanished wooden parts. The evidence for this rests mainly

[6] These four querns are illustrated in my former article, loc. cit., figs. 14, 17–19 (p. 143), and plate II, 5, 6.

on the indications afforded by the shapes of the stones, and partly on the realization that just as the stones have undergone progressive development, stage by stage, so we may expect the wooden parts to have undergone a parallel development, each stage evolving from the preceding.

First of all the missing parts of the broken stones (nos. 1 and 4) were restored with cement, much in the same way as the missing parts of pots are made up with plaster. Quern no. 4 lacked a lower stone altogether, but this was supplied in cement, based on another specimen of the same type.

Three wooden parts are ordinarily needed : a spindle, a rynd, and a handle.

The *spindle* is a short vertical rod which either projects from a socket in the centre of the lower stone, or, in later querns, passes right through the lower stone to rest on a board or moveable lever below it (pp. 144–5 of former article).

The *rynd* is a bridge which is jammed across the lower part of the aperture in the upper stone, having a little socket on its lower face which rests on the top of the spindle. It thus carries part of the weight of the upper stone, but it and the spindle must be mutually adjusted so that the outer edge of the upper stone rests lightly on that of the lower stone. The rynd must not block the aperture of the upper stone entirely, but must allow room for the entrance of the grain.

The form of the *handle* has to be considered on the merits of each case, but it seems that the familiar handle standing in a vertical socket near the outer edge of the upper stone is a late feature which does not normally occur till after the close of the Roman period, except in the case of the imported German lava querns.[7]

Quern no. 1 (fig. 24a and plate II) from the Trundle, Sussex (before 50 B.C.). Here the aperture in the upper stone takes the form of a cylindrical pipe, enlarged on each side by a long groove or channel which extends throughout the whole thickness of the stone. From this we infer that the rynd must have taken the form of a wooden cylinder which plugged the whole length of the cylindrical pipe, while the two

[7] Exceptions to this rule may occur : a 3rd–4th century quern (fragment) from Thundersbarrow Hill, Sussex, originally 30–32 inches in diameter and $3\frac{1}{4}$ inches thick, preserves part of the socket for a vertical handle (*Ant. Journ.* 1933, XIII, 123–4). In this case the diameter of the quern was sufficient to allow a handle so placed to exert the necessary leverage ; in most Roman querns the diameter was so small that the handle had to extend radially beyond the edge of the stone.

PLATE I

DEVELOPMENTAL SERIES OF RESTORED QUERNS IN THE MUSEUM OF THE SUSSEX ARCHAEOLOGICAL SOCIETY, LEWES

facing p. 24

PLATE II

QUERNS RESTORED AND MOUNTED

Above: Quern no. 1, from the Trundle, Sussex (before 50 B.C.) (Stones restored with cement)
Below: Quern no. 2, from Iver (?). (Type, first century A.D.) (Stones complete)

Ph. E.C.C.

PLATE III

QUERNS RESTORED AND MOUNTED

Above: Quern no. 3, from Hassocks, Sussex. (2nd century A.D.) (Stones complete)
Below: Quern no. 4, from Thundersbarrow Hill, Sussex (4th century A.D.)
(Stones restored with cement)

Ph. E.C.C.

PLATE IV

QUERNS RESTORED AND MOUNTED

Upper : Quern no. 5. Pre-Roman Wessex type (no history)
Lower : Quern no. 6. Flat disc type (Hebridean ?)

Ph. E.C.C.

channels served to admit the grain. A prominent radial groove on the flat top of the stone indicates the position and character of the handle ; this projected outwards and very slightly upwards, while its inner end was secured by attachment to the top of the rynd. Without such attachment there would be nothing to keep the handle in place ; moreover this arrangement accounts for the extension of the rynd up to the top of the stone.

A radially projecting handle seems to be reminiscent of the levers to which donkeys or slaves were attached in the case of the big urban mills of Greece and Rome, but in a quern it is a most unhandy thing to use. No continuous grip can be kept on it as the quern revolves. One may legitimately conclude that it was originally provided with an upstanding grip, either by using a naturally bent piece of wood or by inserting a second piece, as in the illustrations.

QUERN NO. 2 (FIG. 25 and PLATE II), said to be from Iver, Bucks (type, first century A.D.). In the course of probably less than two centuries the local quern-type has lost more than half of its height, but otherwise remains very similar. The peculiar form of the aperture in no. 1 has been softened down to an oval in no. 2, while its upper part has been widened out to form a funnel or hopper to hold the grain. The radial groove for the handle is unaltered, and joins the central aperture in the middle of one of the longer sides of the oval. Thus the handle must have united with the rynd as before, but owing to the reduced thickness of the stone the rynd assumes the form of a modest bridge across the middle of the oval aperture at its lowest part. This bridge-like form and low position is thenceforth characteristic of most querns, and, translated into iron, is found in all large millstones down to the present day.

QUERN NO. 3 (FIG. 26 and PLATE III), from Hassocks, Sussex (probably second century A.D.). Now the upper stone has become so thin that it is no longer possible to sink the handle in a groove on its flat upper surface, while the central aperture is a mere window. There is no visible means of attaching a handle in any ordinary manner, but two considerations supply the key to the problem : (1) the handle having been radially placed hitherto, is likely to have still been similarly placed in this specimen, even in the absence of a groove for it ; and (2) it is a noticeable fact in the local quern-series that at the developmental stage in which the handle-groove disappears the central aperture becomes rectangular instead of oval. This can only mean that the radial handle now lay on top of the upper stone, and that its inner end

curved down into the central aperture, the rectangular cut of which enabled the handle to get a grip on it like a spanner on a nut. In this case the end of the handle, jammed firmly into the aperture, presumably took the place of the rynd and made direct contact with the spindle.

The absence of a hopper is a practical defect in this quern, and in view of the subsequent development of a projecting stone hopper in the next type (no. 4), it is possible that no. 3 may have been provided with (say) a leather funnel, attached to the end of the handle, as shown in the photograph. This, however, is merely conjectural.

Quern no. 4 (fig. 27 and plate III), from Thundersbarrow Hill, Sussex (fourth century A.D.) Here the principal new features are the projecting stone hopper and the downward-sloping upper surface. The central aperture is still rectangular, which implies a similar handle-fitting to that of no. 3, but as the rim of the hopper is unbroken by any gap left for the handle to pass through, it follows that the latter must have curved over the rim, as in the illustrations. Here again the inner end of the handle is likely to have served as the rynd.

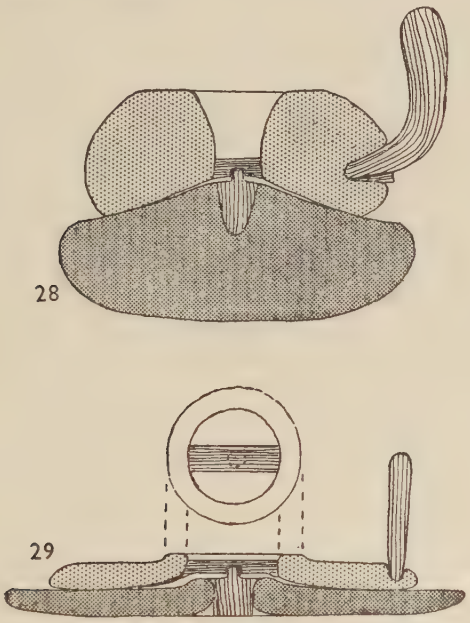
All four of these querns have been mounted and put into working order in the manner described, and are exhibited as part of a developmental series of restored querns in the Sussex Archaeological Society's Museum at Barbican House, Lewes (plate I).

This is, of course, merely a local series, and its features are not by any means universal. But it may furnish hints and suggestions as to the methods by which other types may have been mounted. In the Wessex type the handle, which was planted in a horizontal socket in the side of the upper stone, did not make contact with the rynd. The derivatives of this type, which appear to include the Hunsbury and puddingstone varieties as well as those of Scotland, maintain the horizontal handle-socket until, as a result of progressive flattening of the upper stone (in the Scottish series) the socket gradually becomes more and more vertical.

Querns nos. 5 and 6, which were recently given to the writer by Mr W. J. Hemp, F.S.A., illustrate the beginning and end of this series. Both have been mounted by the writer, as described below, and work effectively.

Quern no. 5 (fig. 28 and plate IV) is of pre-Roman Wessex type, and has been made from two rounded boulders of elliptical plan; the longer diameter of each is shown in the section. The hole through the upper stone is roughly circular in plan, and cannot therefore have been plugged with a cylindrical rynd, as in the contemporary Sussex

type (no. 1). Many Wessex querns, however, have a similarly shaped aperture to those of Sussex. But seeing that in the Wessex type the handle is always set in a lateral socket and does not come into contact with the rynd, there is no need for the latter to extend up to the top of the aperture, as in the Sussex specimen. It follows that in the present example the rynd need have been no bigger than the little bridge shown in the figure, and also in PLATE IV, 2. A handle, made from a curved



FIGS. 28, 29. QUERNS RESTORED AND REMOUNTED

28 Quern no. 5—Pre-Roman Wessex type (no history).
29 Quern no. 6—Flat disc type (no history—Hebridean ?)
(Both in the writer's possession).

oak-branch and fixed into its socket with wedges, has proved perfectly serviceable.

QUERN NO. 6 (FIG. 29 and PLATE IV) is of the flat disc form, and should be comparatively modern—perhaps Hebridean. Except for a slight cone at the centre of the lower stone the grinding surfaces are quite flat. The upper stone has a wide circular hole which covers the cone, and would have been bridged by a relatively long and narrow rynd, as illustrated. The upper stone is of smaller diameter than the

lower, and has three shallow sockets for a vertical handle at roughly equal intervals round the circumference.

Many complete upper stones are found in which there is no visible handle-socket of any kind, and yet the central aperture may be circular. Here, it seems, we must fall back on guesswork as to the method of mounting, and perhaps the most plausible suggestion is that in spite of the shape of the aperture the inner end of a radially placed handle may have been jammed into it, after the manner of nos. 3 and 4 described above. But any method that may have been adopted in such querns must have been unsatisfactory.

In some later querns, and all modern mill-stones, slots are cut in the under-surface of the upper stone on either side of the central aperture to accommodate a narrow bridge-like rynd which spanned the aperture. In such cases the rynd was of iron. Dr Hencken found such an iron rynd in the ninth century fort of Cahercommaun, Co. Clare.[8]

One curious Roman quern from Middlewich (Cheshire) has a stone rynd, of one piece with the upper stone.

The wooden parts, reconstructed as described above, proved to be thoroughly practical when put to the test. All four restored querns were used for grinding wheat, in order that experience might be gained, for without such experience no instrument can be properly understood. If one does not measure standards of efficiency by those of modern machinery, one may say that querns nos. 2, 3 and 4 worked very satisfactorily. No. 1, however, failed because the stones did not fit one another very well, owing to faults in the cement restoration. As a result most of the grain ran through between the stones too quickly, and emerged unaltered, though a small proportion of it was ground.

The upper and lower stones should fit so that they are in light contact all round the outer edge, but nearer the centre there should be a little space between them. When a handful of grain is fed into the central aperture some of it immediately passes into this space, and as the individual grains work outwards towards the periphery they lift the upper stone slightly off the spindle ; in this way they take the full weight of the revolving stone. It is here, near the outer edge, that the grinding is done, but the slight lifting of the upper stone inevitably allows a few whole grains and a good many partly crushed grains to escape round the circumference. After this the upper stone settles down as the remaining grains are crushed smaller and smaller, and if

[8] H. O'N. Hencken, *Cahercommaun* (Roy. Soc. Ant. Ireland, 1938), p. 49 and fig. 29, no. 698.

for the time being no more whole grains are fed in to the quern, really fine flour is produced. If, however, the quern is worked empty for too long, grit from the stones may get into the flour. (Cement-restored querns should not be used if the flour is to be used for subsequent baking !)

As the meal emerges all round the circumference of the stones some provision needs to be made for collecting it in as clean a condition as possible. This meal consists of a mixture of fine flour, partly-ground grains, whole grains and bran. The writer's practice was to sift this, and re-grind the residue, the process being repeated as often as might be necessary until nothing but bran was left in the sieve. In the case of wheat that had not previously been dried, it took from half to three-quarters of an hour to grind one pound, sifting and re-grinding 8 or 9 times, the final proceeds consisting of about 14 ozs. (or 87.5 per cent.) of fine wholemeal flour, one ounce of bran, and one ounce on one's clothes. If the ancient peasant was not so particular about the fineness of the flour the process of grinding need not have taken so long ; in any case practice no doubt made perfect, then as now. If he ' bolted ' his meal (I refer to him as miller, not as consumer) he could have used a piece of loosely woven cloth as a sieve.

As regards the relative efficiency of the different querns, no. 1 has already been excused from competing on account of faulty cement-reconstruction ; nos. 2 and 3 were about equal in efficiency ; while no. 4 had definite advantages in being wider, and having less steeply sloping grinding surfaces, as a result of which the grain was not hurried out of the quern quite so prematurely.

The flour produced by nos. 2 and 3 made excellent wholemeal scones, upon which a large meeting of members of the Sussex Archaeological Society were regaled at a demonstration in 1937.

There is, however, evidence that both before and during the Roman period—as well as in the Hebrides in recent times—corn was usually roasted before being ground. This makes the grains more brittle and less liable to be crushed or flattened. Professor Hatt found remains of coarse-ground barley on one of his sites in Denmark, and was able to show by the angular fragmentation of the grains that it had been roasted before being ground—a conclusion which he confirmed by the experimental grinding of barley in an old quern.[9] It

[9] ANTIQUITY, 1938, XII, 151–2. On p. 152 a printer's extraordinary ' mishap ' has made nonsense of the second line, which should read : ' When dried in an oven there was less flattening but no angular fragments '. (See also p. 365 of the same volume.—EDITOR).

therefore became desirable to compare the efficiency of one of our querns when it was used for grinding wheat that had been roasted. Some wheat (16 ozs.) was first slowly dried and then roasted till it darkened slightly in colour and began to give off an irresistibly appetizing aroma. This reduced its weight by loss of water to 14 ozs. When cold the grain was ground in quern no. 3, with greatly increased efficiency. After putting the grain through the quern only twice the 14 ozs. of grain yielded 13 ozs. (or 93 per cent.) of flour in a few minutes, with negligible residue.

In conducting this last experiment the writer has had the benefit of the experience of a lady who, born in the Isle of Lewis, spent her youth in the remote island of Foula (Shetland), where she used to grind the home-grown corn on the domestic quern.[10] She expressed appreciation of the efficiency of the Roman quern (no. 3), and was able to advise as to such details as the degree of previous roasting, the speed of turning the quern, and degree of fineness required in the meal according to the purpose for which it was ground. She also superintended the grinding of specimens of oats and barley, where the main difficulty is the separation of the husks from the grain. Previous drying is necessary for this, as it hardens the grain and loosens the husks. One pound of oats became $13\frac{1}{2}$ ozs. after drying, and yielded $12\frac{3}{4}$ ozs of oatmeal ten minutes later, after being put twice through the quern and sifted. A further sifting through butter-muslin removed the tiny spicules of rolled husks which pass through the mesh of a fine wire sieve. Similarly, a pound of barley became $14\frac{1}{4}$ ozs. after drying, and after grinding three times yielded 8 ozs. of fairly fine meal, and $6\frac{1}{4}$ oz. of coarse meal and husks. My instructress insisted on reserving the latter for a kind of porridge, and did not approve of grinding barley at all fine. In any case it is a much more resistant grain than wheat or oats.

Previous drying and roasting of grain over a pit containing braziers of charcoal was the normal procedure in Foula. I also learned that large querns might have two handles, in which case two women would share the work, but as they could not make the quern revolve without continually changing hands, they resorted to a backwards-and-forwards motion with each handle in turn, the upper stone thus doing a half-turn in opposite directions alternately. In this connexion Mrs Macleod Banks, of the Folklore Society, has drawn my attention to a Gaelic riddle of a type which usually refers to domestic utensils; in this

[10] See plate III of former article.

case she suggests that the reference may be to a two-handled quern : ' An old woman in the corner, spokes through her two eyes, and she grumbling '.

Querns nos. 5 and 6 were also tested for their efficiency in grinding. With no. 5 (Wessex type) 12½ ozs. of roasted wheat yielded 9½ ozs. of medium and 1¼ oz. of coarse meal in 15 minutes, after passing three times through the quern. The medium meal, when bolted through fine butter-muslin, gave 2¼ ozs. of very fine flour of a pale straw colour —one of the effects of previous roasting. When the hopper of this quern was subsequently filled up with coarsely ground meal, it passed through extremely slowly, and the resulting flour was almost as fine as if it had been bolted through butter-muslin.

The flat disc quern (no. 6) gave a very similar yield with 12½ ozs. of roasted wheat, viz., 10½ ozs. of medium and 1½ ozs. of coarse meal in 15 minutes, after passing twice through the quern. As the lower stone of this specimen is larger than the upper, most of the meal lay on the flat peripheral portion instead of falling off the edge, and so came in for more grinding than in the case of the other quern.

The Philology of Querns

Another most suggestive aspect of the study of an implement is a consideration of the names by which it has been known in the ancient and modern languages of Europe. Properly studied, words can be as instructive as material types. In the present case the significance of the ancient names is not yet fully apparent.

These fall into two groups, corresponding to our words ' mill ' and ' quern ' respectively.

The first is South European, and is represented by Greek μύλη and Latin *mola*, *molere*, from a primitive root seen in Sanskrit *mar*, to grind. No sense of spinning or turning is implied, and the Homeric μύλη was always a saddle-quern (compare our ' molar teeth ' or ' grinders '), but the Greek term was also applied to rotary mills of the second century A.D. The Latin *mola* seems to have been applied to any kind of mill, though no specific references to saddle-querns are identifiable in Latin literature. The late Latin (fourth century) *molina* is the source from which the various north European words have been borrowed ; such words include English ' mill ', German *Mühle*, Gaelic *muileann*, Welsh *melin*, etc. The Latin *molina* and its north European derivatives seem to have been applied solely to large mechanical mills, including

watermills and windmills. In English the quern was not called a ' hand-mill ' till the seventeenth century.

The second group is north European, and comprises words in the Teutonic and Scandinavian languages more or less closely resembling our ' quern ', and other related words in the Baltic and Slavonic languages. In Celtic we have Old Irish *bró* and Welsh *breuan* which are considered to be normal derivatives from the same root, Celtic *b* corresponding with Teutonic *k*. If this is so, then this root that was common to all these north European languages at so early a date must have been applied originally to the saddle-quern, and only later to rotary querns. Thus the word ' quern ' has no more essentially a rotary significance than the word ' mill ', and it is only a coincidence that a totally unrelated Welsh word *chwyrnellu* means to whirl or spin. It is possible that our words ' grind ' and ' corn ' may belong to the same root as ' quern '.

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Wiltshire Place-names

by H. C. Brentnall

WOULD Charles Lamb have put Place-name Books on his Index of *biblia a-biblia*—books that are no books ? He thanks his stars for the catholicity of his taste, but place-names make broken reading. Some degree of local knowledge is ordinarily required to give the subject zest. *Blakesmoor* might have interested him a while. (Was the *s* ' manorial ' or ' inorganic '?) Whether he would have turned many other pages of the H—shire volume is doubtful.

But Lamb belonged to an age that was barely conscious of its place-names in anything beyond their directory use (and Directories he specifically bars). So far as it was practised at all, their interpretation was still an art, for which an ingenious imagination, coupled perhaps with a smattering of some ancient language, sufficed. Thus Stukeley in the eighteenth century could derive *Hackpen* from the Chaldee, or Duke a hundred years later find a Hebrew origin for *Avebury*, to suit preconceptions of their own. But perhaps these instances are unfortunately chosen, since even the editors of the Place-name Survey can make no final pronouncement upon either name. A later generation, with more historical sense but little more plausibility, could explain *Martinsell* as *maerthorn's-hill* or *Preshute* as *près-château* from its proximity to Marlborough's Norman castle. The value of charter evidence was beginning to be recognized, as by Canon Jones in Wiltshire, but for the majority of those who felt the need of early forms at all the blunderings of Domesday clerks were good enough. Only in the present century has the art become a science based strictly on the collation of the earliest available forms. Once that requirement was appreciated a host of fond conjectures were consigned to the rubbish heap. That they have not all yet reached their destination is no fault of the English Place-name Society.

The part played by the Swedes in the development of English toponymology (if the word may be allowed) is very remarkable. We may hesitate to attribute it in the first instance to the attractions of our island ; Dr Zachrisson indeed has some shrewd things to say about the retrogression of English standards of domestic comfort since the Roman occupation. We may rather suspect that it had its origin in the examination statutes of the Swedish universities. But whatever the ultimate cause, we owe a debt of gratitude to that group of philologists

who have made our place-names their particular study and brought to its prosecution what our insular theorizing has too often lacked, a present sense of our continental origins and the experience gained in continental fields of inquiry. In this county, if we exclude the modest *Notes on Wiltshire Place-names* published by J. C. Longstaff in 1911, the first large-scale treatise on the Wiltshire material was Dr Ekblom's *Place-names of Wiltshire*, which came from Uppsala in 1917. The number of early forms collected in that volume was remarkable, but it suffered perhaps from an excess of philological apparatus, which the editors of the Place-name Survey are careful to eschew. When ' mutations ' and ' inorganic consonants ' and ' OFrench sound laws ' are flying, the ordinary reader takes cover till the conclusion emerges. But all who are interested in place-names must acknowledge their debt to Dr Ekwall, and in particular for his *Dictionary of English Place Names* published by the Oxford Press in 1936. Let no one, however, suppose that the *Dictionary* has rendered the further activity of the Survey unnecessary. There must always be need for that detailed regional examination which takes account of local conditions and minor names, and can find space for the discussion of particular problems.

The present volume[1] saw the light in the dawn of war and might well have proved the last—for a while—of the county surveys which have appeared with such exemplary regularity. Nevertheless it has been followed by another, compiled however under conditions of increasing difficulty which make the immediate future of the Survey a matter of no little concern. It is gratifying to learn that the work on two more counties at least is well advanced.

The names on the title-page are a warrant for the contents. In this series alone Professor Stenton and Sir Allen Mawer have each collaborated in the surveys of ten counties, and Mr Gover in those of seven. Their technique is fully developed, the presentation as attractive as the Cambridge Press could make it, and that is saying much. The editors' wide experience is our security that no place-name soluble on legitimate lines will remain unsolved. That the information on any county is complete, they would be the first to deny, and the *Addenda et Corrigenda* which precede the main business of each volume are at once the acknowledgment and the amends. Sixteen counties have been published since the Buckinghamshire volume appeared, yet the

[1] English Place-Name Society, volume xvi. *The Place-names of Wiltshire*. By J. E. B. Gover, Allen Mawer and F. M. Stenton. *Cambridge, at the University Press*, 1939. pp. xli, 547. *22s 6d*.

additions for that and each following county still trail like meteor-swarms, now thick, now thin, across the annual path of the Survey. The method has its drawbacks, but how otherwise are the constant accretions of knowledge to be recorded ?

Wiltshiremen will be grateful for the abundant information now made available and for the care that has gone to the searching and sifting of the formidable amount of material underlying it. One may doubt indeed whether a county, though probably the inevitable, is also the ideal unit for such a survey. Dialects and customs know few county boundaries, and Wessex has a unity which transcends them. Some of the historical problems which place-names should help to elucidate tend only to be obscured by the blinkers of a county boundary. Our editors, it may be noted, are generous in their limitations. Parishes that have been transferred to other counties such as Damerham, Plaitford (but not Bramshaw) and Kemble (but not Poulton) are still treated as parts of Wiltshire while, on the other hand, Kilmington, formerly in Somerset, and those parts of Shalbourne which once belonged to Berkshire are not excluded from the survey.

The arrangement of the parishes under their hundreds rather than in their alphabetical order is based on history but hardly on convenience. It does little to maintain local connexions, and it involves a constant use of the very admirable index. Cross-references between the parishes in the main part of the book and in the field-name section would obviate more use of the index, but the printing of the field-names along with the map-names under one heading would be still more convenient. The order of the hundreds themselves has doubtless an explanation, but it is nowhere given. It is not alphabetical, nor does it correspond, for instance, to that adopted in Britton's *Wiltshire*. It resembles a capital G traced against the clock and ending in a complicated crossbar. The ' ragged ' hundreds, of which the editors recognize twelve, though there were formerly still more, are disentangled only at the cost of any local associations the arrangement may be intended to retain. Nowhere however, it is fair to add, except in Sussex has the Survey had to deal with hundreds so confused.

One more point and this cavilling shall cease. It would have seriously overloaded the index to include in it the field- and minor names, but if in the invaluable preliminary sections (*a*), (*b*) and (*c*) still more room could have been found for the mention of parishes, it would have added greatly to their value. Repeated search in section (*d*), a formidable task, for the *wegilbergh* referred to in section (*a*) has failed

to discover where it lay, a failure for which the date of its occurrence is no real compensation. *Hweogolbeorg* would mean ' wheelbarrow ', and the suggestion of a disc barrow is strong.

The example is not taken at haphazard. It bears upon an examination of the *-beorgs* and *-burhs* of Wiltshire which it is one of the many merits of this volume at last to make possible. The material for it is largely buried among these minor names. *Beorg*, which as a second element usually becomes *-borough* in Saxon districts, indicates a mound, and usually a barrow. For other elevations our ancestors had other words. They used their vocabulary, which was limited, we are told, in this region, accurately according to their lights, but we need not suppose them to have received much illumination from the study of archaeology. If a natural mound had the shape of a barrow, it is not unlikely that they would describe it by the same word, though it is not easy to find such a use of *beorg* in Wiltshire.[2]

About a score of *-borough* forms are traceable by diligent search in this volume, and there are certainly more. Goldborough, for instance, is a field-name in Preshute, and Millborough a barrow in Newton Tony. What degree of familiarity was necessary to change a ' barrow ' into a *-borough* it would be interesting, but not easy, to determine. It always happened when the name was transferred to a settlement as has occurred in nine traceable instances in Wiltshire. Of these four are farms, one (Bedborough) a hamlet, three villages (Brokenborough, Wanborough,

[2] Three instances from other counties are quoted in the Introductory volume of the Survey, part I, p. 157 : *Black Barrow* in Broomy Walk, New Forest, but this is called a tumulus in the one-inch Ordnance map of the Forest ; *Black Barrow*, Isle of Wight, but, if this is the one in Mottistone, the one-inch map again prints the name in the type reserved for (non-geological) antiquities ; *Creech Barrow* in Purbeck, which Murray's Guide described as ' a conical tertiary hill, almost volcanic in outline, towering above all the other heights '. Here we seem to have the very thing, a natural hill of barrow form—but the Ordnance map shows a tumulus on its crest. Nevertheless there may be genuine instances, and perhaps *Charlbury*, formerly known as *Shalborough*, or *Shelbarrow Hill* is one. Hippisley Cox (*Green Roads of England*, p. 143) speaks of ' the three rounded summits of Charbury (*sic*) Hill, looking like great tumuli '. He seems to include Lammy Down, but on none of these summits does any barrow exist today. Hoare (*Anc. Wilts.*, II, 46) mentions that several barrows are shown here on old maps of Wiltshire, but that they are really natural mounds. He is probably referring to Andrews and Dury's map of 1773. *Black Barrow* in Broomy Walk is a natural hill like King Barrow, near Cripplestyle, 6 miles W. by N. of it across the Arm. Both are now correctly shown in ordinary lettering on the 5th edition of the 1-inch O.S. map. *Black Barrow* in Mottistone is also a natural hill, but there is a large round barrow, formerly unmarked, near it—I write from memory, since my notes and maps are at present inaccessible. There can be no doubt, I think, that *beorh*, like *hlaew*, was occasionally applied to natural hills.—O.G.S.C.]

Woodborough), and one (Marlborough) has risen to the dignity of a borough in the civic sense. In two of these only does the ' barrow ' as opposed to the ' hill ' interpretation seem to stand in need of vindication.

The Survey claims Woodborough as a ' hill ' name. The reference is apparently to Woodborough Hill, since there is no other in the parish. Seen from any vantage point above the Vale of Pewsey that hill is certainly a conspicuous object. It stands up from a promontory of the lower chalk amid the surrounding greensand, but it does not stand alone. It has a close neighbour of similar size and appearance in the adjoining parish, which bears the name of Picked (i.e. Peaked) Hill.[3] If the one seemed a *beorg* to the people of Woodborough, why did their neighbours of Wilcot prefer to call the other a *hyll*? The few trees that either hill bears today are none too happy in their situation. On the other hand we are told (p. 503) of several fields in *-hurst*. It seems possible that the woodland which once covered them covered a barrow too. If it did not, a wooded hill is still to find.

For Brokenborough the editors seem to incline to the ' barrow ' interpretation, but they are supremely cautious. 'Broken' and ' rough ' (*row*) barrows occur in many places, and that explanation is the obvious one in the present instance. But the question is complicated by the passage quoted from the *Patrologia Latina* on p. 54. It contains a professedly Celtic name for this place, *Kairdurberg*, ' quod Saxonice dicitur *Brohamberg* nunc vero *Brokenberg* '. The editors add the suggestion that *dur* in the Celtic represents the *duro-* of Durobriva (Rochester) and means ' stronghold ', and there they leave it. *Kairdurberg* is therefore still in play—*Messieurs, faites vos jeux*—so here goes !

It may be remarked that *Kairdur*—' Fortfort ', in effect—is not a promising beginning, however the word may have ended before the scribe was mesmerized by the *berg* termination. It is indeed obvious that the text is corrupt. Ekwall in his *English River Names* (under *Doferic*) postulates a diminutive of *dubro* in *-ic* meaning ' little stream '. Might we not use it here and restore *Kairdubric*, ' the Fort on the Lesser Avon '? Brokenborough lies on the smaller (Tetbury) branch of that infant river, the branch which was formerly known (*pace* our editors, who assign the name elsewhere) as the Ingelburne. *Brohamberg* in turn becomes intelligible, if we may assume that a guttural has

[3] The same promontory carries a lesser elevation, in Alton Priors, called Burlinch Hill. This seems to be a *hlinc* compound which has escaped the editors' notice.

fallen out and that the *-berg* would have been *-burg* but for the scribe's obsession. *Brochamburg*, on the analogy of similar forms frequent in this region, would represent *Brochaemeburh*, ' the fort of the brookside dwellers '. The Latin implies that the word is meant to be a translation (*Saxonice*) of its Celtic predecessor, but there is no clear suggestion that Brokenborough was ever known as Brochamburg. What we seem to have reached is an early effort at place-name interpretation. The *Brochaemeburh* form may never have existed save in the imagination of the Latin author, who invented a Saxon equivalent, and that not the most obvious, of the Celtic name as near as possible to the real Saxon name of *Brokenebeorg*. But in that case what had become of the broken *beorg*? Had its existence already been forgotten? And what was it? This is no region of broken hills. It would require an extravagant imagination to apply the term to the Avon valley in this stage or to any conceivable local quarry. The evidence for the name has vanished, but barrows (already ' broken ') disappear far more readily than such a cutting.

Of the Wiltshire *burhs*, or *burghs*, we were promised on p. 416 a distribution map. But it was not forthcoming, and in the succeeding (Nottinghamshire) volume the promise is expunged. It could not have distinguished the Saxon from the Celtic *burhs*, and it must have given a wrong impression of the distribution of the hill-camps, since so many of them do not carry *-burh* names. Its omission therefore need not be deplored. In Wiltshire the *-burhs* outnumber the *-beorgs* by about three to one, for there are some sixty of the former, if we include, as we must, the minor names, but omit the fox-earths and the rabbit-warrens, the ' foxburys ' and ' coneyburys '. It is obvious that these figures bear no relation to the real proportion of camps to barrows, for Goddard's list includes over 1800 of the latter. Some modern -burys indeed derive from *-beorgs*. Perhaps the two most obvious cases are Silbury Hill and the Lugbury long barrow, but there are at least half a dozen others. For some of these alternative forms have existed—Cockleborough for Cocklebury in Langley Burrell, Clinchborough for Clitchbury in Brinkworth and Shalborough for Charlbury in Little Hinton (see note 2). There is also evidence of the rarer reverse process in the alternative Yarnborough for Yarnbury, to which Mr Newall draws attention. The distinction, as is well known, is lost in the Midlands. Borough Hill, Daventry, for instance, carries a camp and not a barrow.

Among true *-burhs* names for which a definite derivation is proposed

by our editors, descriptive first elements outnumber the personal by almost two to one, and half the persons proposed for the distinction are asterisked, that is, they survive only as the eponymous owners of landmarks or founders of settlements. Now a place-name trail which leads to a personal name with no historical associations inevitably leaves the inquirer with a sense of frustration. If that name is asterisked—it matters little whether the asterisk is single or double—frustration turns to something like resentment. Of course the feeling is unjustified; we are committed to the trail of truth, and truths are often unpalatable. We cannot pretend to know every name borne by our Saxon ancestors, and it is right that some, certainly mute and apparently inglorious, should enjoy what recognition the speech of succeeding generations has left them. If Ceadela can recognize himself in Chaddenwick, or Tilluc in Tinkley, they are as surely entitled to that fragmentary immortality as Celtic Maildub and Saxon Ealdhelm to their mystic union in Malmesbury—an unregarded outcome of the Synod of Whitby. But need we be so frequently reduced to these hypothetical eponyms?

An examination of the *-burhs* of Wiltshire suggests that personal elements belong normally to the settlements and descriptive elements to the hill-camps, but the rule is by no means inviolable.[4] Westbury town and Guthred's lonely *burh* (Godsbury in Collingbourne Kingston) find themselves apparently in the wrong categories. Nor is it always easy to distinguish them. In which sense was Malmesbury a *burh* originally? The Celtic *Kaerbladon* appears to have occupied the same hill as the Alfredian *burh*. In any case it is a settlement, and the personal element is well attested. Tisbury became another of Alfred's *burhs*, and we may allow *Tysse* his memorial despite his asterisk. Nor can we fairly withhold it from the ladies whose names are hidden in Alderbury and Heytesbury, though traces of earthworks exist in either parish. Amesbury is a settlement under the walls of 'Vespasian's Camp', a fact which our editors omit to mention. To which then must we look for the origin of the name? Surely to the camp, which Vespasian never occupied. Here again a personal name is clearly indicated, but need it be Saxon? *Ambre*, favoured by the editors, has no independent

[4] Dr Grundy has analyxed the *wics* and *-weorths* of the charters with interesting results (*Wilts. Arch. Mag.* vol. XLI, p. 344). He shows that, where determinable, 95 per cent. of the *-wics* have descriptive attributes and 87 per cent. of the *-weorths* personal ones. The two classes of Wiltshire *-burhs* cannot be made to give such clear results owing to the difficulty of deciding in many cases whether the settlement was named from an earthwork or the earthwork from a settlement. Nevertheless a tendency is traceable on which a presumption may be tentatively based.

record. Aurelius Ambrosius, on the other hand, has as good an entity as Arthur, whose historical existence few would now deny, and tradition associates him with the district. 'Ambrosius' bury' seems a better guess, though it can never be more. Chisbury is another settlement still closer to a camp, and *Cissa's* claims are strong. But this Cissa seems to have settled within the camp, where the present farm stands, and thereby establishes his right to name it. *Budda* of Budbury above Bradford may well have done the same, but little trace of the earthwork now remains. At Ramsbury we might allow Raven his capital letter, for here no camp is now visible. But it is a little suspicious that another *Hremnesbyrig* lies in Uffington not ten miles away, and we may object with Dr Grundy to gentlemen with the Scandinavian name of Raven naming so many Ramsburys. These, with one exception, are all the settlement *burhs* in the county for which a personal element is proposed with any confidence.

That one exception is Badbury, now a tithing of Chisledon. As a settlement we might be inclined to allow it to the *Badda* to whom the editors attribute it. But Badbury is first and foremost a hill-fort, one of many of the name. It is true that Badbury camp is now more commonly known as Liddington Castle, but that must be due to a change in boundaries at some undetermined date.[5] The persistence of the earlier name suggests that the change is not so very ancient. But there are many other Badburys. One lies in Brixton Deveril, but that is traced to a *Babba* on p. 481; another is an alternative name for Bilbury in Wylye.[6] Outside this county we find Badbury Rings in Dorset and Badbury Hill, with a 'Danish' camp, in Berkshire. Badby, Northamptonshire, is traced by Ekwall to *Baddanburh*, and there is an earthwork near. Baumber, Lincolnshire, was *Baddanburh* and lies high. No wonder Ekwall is driven in his Place-name Dictionary to suggest, on less evidence than is here presented, that Badda may have

[5] A thousand years ago the camp must have belonged to Badbury. The bounds of Liddington and Badbury at that date are discussed in Dr Grundy's *Saxon Land-charters of Wiltshire* (1, p. 205 and 2, p. 12), but the interpretation has in parts defeated him They are certainly obscure, but without going into details it may be said that the common boundary to the south seems to become intelligible only if it may be taken east of the camp, not west as the present boundary runs. This transfers the camp from Liddington to Badbury.

[6] This alternative is interesting. It seems to show a change resultant upon the occupation of the camp by the founder of Bilbury Farm. He may have been a *Billa* as Mr Young suggests (*Origins of the West Saxon Kingdom*, p. 32), but the possibility of a *Biwiliburh* from *Biwili*, the old name of the Wylye land-unit, must not be overlooked.

been ' a legendary hero associated with ancient camps '. But is it not possible that we have here to do with a generic name of pre-Saxon origin represented in the historic *Mount Badon* ?

And what of *Cada*, who had camps in wooded regions, once in Devon and twice in Somerset ? In this county, as also in Devon, he runs to *leahs*. There are two Cadleys at least in Wiltshire, in Chute and Savernake, and Cad(e)nhams also in forest areas of Wiltshire and Hampshire. *Cadas* in fact has left the name on many parts of the map of England, though whether all the areas were originally wooded cannot confidently be affirmed. It can only be remarked that the proclivity of persons of that name for woodland sites is certainly striking, so striking as to place the name alongside *Badda's* as a candidate for legendary honours, if indeed it is a personal name at all.

Bera, the bear, is an unknown name assumed to explain several place-names in England, among them Barbury in Wiltshire. If the local *Bera* ever existed, he lived presumably on the site of Barbury Castle Farm, but that remote site can have had few attractions for a Saxon. It is sometimes forgotten that the brown bear survived in England at least as late as the eighth century, and the animal seems in this case as likely as the man. But is that all the story ?

It is remarkable that all the Saxon battlefields have Saxon, or partially Saxon, names. If *Searobyrig* represents, as Bradley suggested and our editors seem to approve, a rationalization of the native name, for Salisbury, may the same not be true of *Beranbyrig*, though we cannot recover its native form ? Some name must presumably have been given to the battle very soon after it was fought, and neither bears nor Saxon settlers can well have been in possession. Only a sophisticated age can expect its children to memorize Elandslaagte or, to take a recent case, Halfaya. The men who fought there had simpler names for them : ' Hell and Slaughter ' and ' Hellfire corner ' served their turn, and so it may well have been with their ancestors, whose humour ran in less monotonous channels.

Traps for the unwary are as frequent in Wiltshire as elsewhere. Slaughterford, Sugar Hill, Tinhead, Swanborough, to mention only a few, seem to explain themselves—until their historical forms are traced. We can imagine the sort of romance that has been woven round them. But romance on a surer basis is not lacking. The editors have unearthed it in the unpromising Drake North of Damerham, which conceals some story of a dragon's hoard, and in the forgotten *Nykerpole*, the pool of the water-demon, in Mildenhall. They record also, but obscurely

(p. 441), the lost *Grendlesmere* in Ham, the haunt of the marsh-monster of Beowulf. They do not record Dr Grundy's discovery[7] of a form of Hodson in Chiseldon which shows its derivation from Hordestan, ' the treasure stone '

Traces of heathen mythology are noted as frequent, but it should be pointed out that they are much more frequent in the north of the county than in the south. There is a valley of the Marlborough Downs nameless now but once called Woden's Dean. His dyke protects it on the north, his gate gives access on the east, and his barrow dominates its western skyline as the supine form of Cuchullin dominates the southern shore of Carlingford Lough. But the hand of Birinus has been heavy on Woden's grave, and now it is known as Adam's.

It may be suspected, though the editors do not countenance the suspicion, that the names of the summits behind Wansdyke in this region conceal unidentified Celtic elements. Years ago Story Maskelyne offered an explanation of ' Tan ' Hill which went behind St. Anne to the Celtic word for fire (as in *Beltane*), and if we suspect Birinus again —not the man, of course, but the movement of which he was the honoured protagonist—we have many Breton analogues to bear us out. We need not put it past a Christian mission, struggling to uproot the tangled growth of Saxon and Celtic paganism, to persuade the local inhabitants that when they said Tan they really meant St. Anne or to accommodate their August ceremonies to the date of her festival and turn them into Tan Hill Fair. Milk Hill too seems an unlikely name for the highest point in the county, if it means, as the editors tell us, ' the hill of good pasturage ' for milking herds. It is arable now, and the presence of a Saxon ' Oxenmere ' beside its summit suggests that it was arable at least a thousand years ago. Some derivative of the Celtic *mel* (Welsh *moel*), ' bare hill top ', would seem more fitting. The form *meloc* is quoted by Ekwall from Cumberland (*s.v.* Watermillock) in the sense of ' little fell ' and the tautology of ' Meloc Hill ' is very much in keeping with the Saxon usage of Celtic words, as may be observed in many instances.

But the examination of individual names offers little of sustained interest to the casual reader, whatever desultory delights it may hold for the addict. For the connected story, or what there is of it, we must turn to the Introduction, where the editors set out the historical

[7] Grundy, op. cit., I, p. 204. They seem also to have missed his valuable list of Wiltshire place-names, quoted above in note 4. Some of his suggestions there might perhaps have been considered.

conclusions they base upon the place-name evidence. What light does it throw upon the origins of Wessex ? For that vexed inquiry Wiltshire is indeed the crucial county. Did the Saxons enter it from the south with Cerdic, as the Anglo-Saxon Chronicle asserts, or from the north as well—with Ceawlin, as Mr Young would persuade us—or from the east up the Thames valley ? Did they enter early or comparatively late ?

' In Wilts ', says Mr J. N. L. Myres,[8] ' the only group of early names is in the north, suggesting penetration from the Thames and the Kennet '. As to the direction our editors have nothing to tell us, unless indeed their answer is to be inferred from their pronouncement on the matter of date. ' The place-names ', they say, ' show very few of the ancient features distinguishing regions of primary settlement. . . . Even without the definite evidence of the *Chronicle* ', they conclude, ' the character of the place-names of Wiltshire would suggest that the settlement of the county did not begin until the sixth century was well advanced '. There are, it is true, the *hams*, usually accepted as evidence of early, if not of primary, settlement. They are plotted on a distribution map in the pocket, but identification is not always easy, and even when located, the distinction between *hams* and *hamms* is notoriously obscure. The *hams*, perhaps, are best not called in evidence, and as Mr Myres did not quote his ' early names ', we have nothing to oppose to the opinion of the editors. The prevalence moreover of Celtic names must be allowed its weight, suggesting as they again observe, ' that the Saxon occupation of Wiltshire did not begin until the first and most devastating phase of the English invasion was over '.

If the check at Mount Badon called a halt to that first phase, and if, as Whitaker in his *History of Manchester* first suggested, we may identify the site of that siege with Badbury Camp (*Baddanbyrig*), much would seem to be explained. The strategic importance of Badbury, or Liddington Castle, would be enormous. Dr Grundy has shown convincingly that the movements of Saxon armies were confined to the pre-existing roads of the country, and Badbury commands all the routes from the Upper Thames settlements into Central Wiltshire. The Ridgeway and the Icknield Way converge on Badbury in the fork of the Roman roads to Winchester and Salisbury ; but these latter were denied to the Saxons, since the Britons still held Cirencester and, *ex hypothesi*, Badbury. No army advancing from the Dorchester region

[8] *Roman Britain and the English Settlements*, p. 401, footnote

could afford to leave that stronghold unreduced.[9] So far from reducing it, the Saxons of the Thames valley were themselves routed and convinced for a whole generation that the Wiltshire grapes were sour. Our editors, misled perhaps by their parochial approach, do not recognize the alternative name of Liddington Castle, but they do record that Aubrey knew it as Battlebury, which may be significant.

The stock of the Anglo-Saxon Chronicle, despite its evenly spaced dates and Celto-Saxon kings, is rising again. There was a time when the conquests of Cerdic and Cynric were relegated to the realm of fiction, and archaeology seemed to suggest an earlier advance into Wiltshire from the Wash. That advance has now been stayed in the Vale of White Horse, where the Ginges, Lockinges and Balking seem evidence of primitive settlement. A later approach from the Hampshire Avon once again commands a cautious acceptance—so cautious that Mr G. M. Young, in his *Origins of the West Saxon Kingdom*, would appear to surrender the victory at Barbury to the West Saxons of the Upper Thames, limiting the conquests of the southern forces somewhere near the line of Wansdyke. This most interesting suggestion restores the *Chronicle* account as an ill-edited conflation of two separate traditions. If Mr Young's theory may be accepted, it will perhaps help to explain the puzzling tradition that the great bottom running east and west through Savernake Forest was once the boundary between North and South Wiltshire, for that bottom lies, at any rate in part, upon the line of the dyke.

Of course, neither Mr Young nor the editors of this volume would have us believe that Wansdyke was a Saxon *haga*. Our editors make it clear that its origin was as great a mystery to the Saxons as was Avebury to the Druids. But it is permissible to see in its evident relation to the Kennet some connexion with the dangers that threatened its constructors from the direction of the Thames Valley; and the exceptional dimensions which it attains between Morgan's Hill and Savernake point to a still more intimate relation with the Ridgeway as the likeliest line of hostile advance.

But to discuss the purpose of the Wiltshire dykes would lead to speculations which have nothing to do with place-names. It is one of the chief merits of this volume that it provides the material for speculations of the most diverse kinds; it is an even greater one that its editors resist so resolutely the temptation to embark upon any themselves.

[9] The siege is usually represented as a siege of the Saxons by the Britons, but nothing in Gildas, the earliest authority, or in the best texts of Nennius, forbids us to suppose that the *obsessio* was of Britons by Saxons.

A Temple of Adonis?

by J. W. Crowfoot

Lachish II: The Fosse Temple. By Olga Tufnel, Charles H. Inge and Lankester Harding (The Wellcome-Marston Archaeological Research Expedition to the Near East). *Oxford University Press*, 1940.

THIS volume is dedicated by three of his closest friends to the memory of James Leslie Starkey, whose tragic death was so widely deplored. It records, as the editors say, only a small part of the five years' work which he directed at Tell ed Duweir, but it is an extremely interesting part of that work and the volume is a worthy tribute to his memory.

The Fosse temple was a surprising discovery. Mr Starkey came upon it unexpectedly while he was clearing a place on the west side of the hill to dump the spoil from above. In Palestine early temples are rare and the remains of them too scanty to give much reliable information. In this temple the interior disposition of the sanctuary is well preserved, small finds were abundant, and the date of the temple can be fixed within narrow limits—a happy result which we owe to its position at the foot of the hill.

The temple dates from the Late Bronze Age. Previously, during the Middle Bronze Age, the sides of the hill on which Lachish was built were protected by a steep limestone glacis with a trench cut in the rock at the bottom. Fortifications of this type have been found elsewhere in Palestine and they are generally attributed to the Hyksos. The Hyksos were expelled from Egypt about 1578 B.C. and these fortifications fell into ruin some time later. The fosse at the foot of the glacis naturally became choked with debris and remains of three temples were found, built one above the other, in these accumulations of debris. On the talus above the temples there were some graves of the Israelite period, and high above all patches of the white glacis are still in place. The date of the temples was therefore plain from their position; it fell between the collapse of the power of the Hyksos and the rise of the kingdom of Israel, and the small objects found in the different building-levels have now enabled the editors to define the

period of each structure rather more closely; they suggest that the earliest temple was built probably about 1475 B.C., after the expedition of Thothmes III; the second about 1400 and the third about 1325, and that the third temple lasted until 1223 or a little longer; the exact years are not absolutely fixed but those suggested cannot be far wrong.

The temples were all simple structures of rough uncut stones plastered with mud. The sanctuary in the earliest building was a long room 10 m. from north to south and 5 m. across, the west wall resting on the outer edge of the fosse. A shrine was built in the middle of the south wall and there were annexes against the north and west walls. When this temple was demolished the building level was raised by about 50 cms.; the north and south walls of the sanctuary were built on the same lines as before, but it was doubled in width from 5 m. to 10.4 m. so that it became almost square. The annex on the north wall was enlarged at the same time and a new annex was built to the southeast; the position of the shrine was unchanged. The third building stood 65 cms. above the second; another annex was added to the southwest but the ground-plan was otherwise unaltered. The appointments in the third temple were like those in the second so far as can be seen, but much better preserved. The floor was of earth plastered in places, and the roof was carried on four wooden columns which stood on rough stone bases. In its final phase the shrine in the middle of the south wall consisted of a substantial platform, 60 cms. high, 2.25 m. deep and 2.50 m. long, partly recessed into the thickness of the back wall and partly projecting into the sanctuary. It was made of mud plastered and whitened. A mud-brick altar of incense was built against the platform and in front of it was what the editors describe as a *hearth* with a curb of plaster and clay. Three steps led up to the altar from the west, and near them was a libation stand with a cupboard full of lamps behind it. A large pottery bin stood on the east side of the platform, and a number of miscellaneous small objects were found on the platform itself. On each of the other three sides of the sanctuary stood triple rows of low benches built of mud and moulded clay about a foot (30 cms.) apart—too close together, that is, ' to be used comfortably for seating a congregation '. They are described consequently by the editors as offering benches. The main doorway was from the annex to the north, which was evidently a sort of vestibule. Masses of pottery and other objects were found on the floor of the sanctuary and the adjoining rooms; bowls in particular on and beside the benches and against various wall recesses which had served as cupboards.

More still came from a series of pits outside the building, which had been obviously cut to receive broken and discarded objects. An excellent series of photographs and plans (plates II–XIII, LXVI–LXXI) enables one to follow the account given in the text of the disposition of the temple and the successive phases in its history.

The small finds have been published as carefully as the building, some on admirable coloured plates, others in drawings and photographs. The letterpress is concise and well informed, the tables clear and instructive, and the different strata on the site, which correspond more or less with individual pits, enable the editors to arrange the material in useful chronological sequences. The book consequently gives a good picture of Palestinian culture in the Late Bronze Age. It is not one of the most interesting periods in the history of Palestine. The pot-forms, which are mostly of local fabric, show a steady degeneration between the period of the first structure and the last. All the more attractive 'museum pieces' were either imported or made under strong foreign influence. A faience necklace in the Tell el Amarna style, the best scarabs and some other pieces in faience and glass are Egyptian works of the eighteenth or nineteenth dynasties. Most of the cylinders, which are discussed in a note by Miss Parker, show traces of Mitannian influence. One of the ivories may be Egyptian, the rest are Syro-Phoenician in style. Common Cypriot and Mycenaean types are represented in the pottery. The Duweir ewer which is reproduced as a coloured frontispiece is perhaps the most important single find. It contains some crude painting of goats, trees, a stag, a lion and a bird, and eleven letters in the Serabit script which are described by Mr T. H. Gaster. The belated survival of this script—the ewer is now assigned to the latest period of the site (about 1225 B.C.)—may be surprising, but it does not raise our opinion of the local culture.

To return to the temple. It stood outside the city walls and it was built on a singularly inconvenient site, being on the weather-side of the hill and exposed consequently to torrents of rain during the winter months. The excavations had to be suspended again and again because the trenches were flooded out, which suggests that it was used only for seasonal festivals. Architecturally, it was a simple building no more elaborate or dignified than the ordinary houses of the period. On the other hand, there can be no doubt that it was very much frequented. The second structure was twice as big as the first and it was in its turn replaced within a hundred years or so by a building in which two phases can be distinguished. The mass of small objects

found on the site is further proof of its immense popularity—' a total number of 2165 pots have been actually examined and classified, but this does not in any way represent the number of vessels originally present in the Temple area. It was found impossible to keep count of the number of bowl-bases from structure III, so overwhelming were they '. The small finds include a number of objects of value—gold ornaments, ivories and so forth.

The cult and dedication of the temple are briefly discussed on pp. 24, 25. ' No image or obvious cult object was found in the Temple ' (p. 24). None of the inscribed objects throw any certain light on the name of the deity who was worshipped here. The name of the goddess Elath or Allat has been read by some scholars on the ewer, and others have found on it a reference to a divine triad, but the readings are still dubious and the fragments of the ewer were found in a rubbish deposit outside the temple. The only certain figure of a deity which was found on the site is a small bronze statuette of Reshef, but no special significance can be attached to this either because it was found in the lowest level just beyond the east wall of the first structure. Some minor parallels with later Jewish ritual which are noted in their discussion do not help much and the editors end by giving up the problem—'In default of further evidence on the subject it can only be concluded definitely that the Temple was dedicated to native Syrian deities, among them probably Reshef and Elath, the latter possibly associated in a triad ' (p. 25).

To us, on the other hand, it seems certain that the facts do not point to one of the high gods of the Syrian pantheon, Reshef or another. This Lachish temple has none of the features which are characteristic of a temple to these high gods. There is no Holy of Holies, as the editors note ; no temple court, no altar of sacrifice, and the site is far removed from the centre of the town. The temple was clearly built for the cult of a popular deity to whom the worshippers had immediate access. This being granted, the identification is surely a simple matter, because so far as we know there is only one Syrian cult which fills the role, the cult of the divine spirits of vegetation who were worshipped under so many different names—Tammuz and Ishtar in early days, Adonis and Aphrodite in the classical period. The ritual, of which we have several accounts, varied in different places, but there are some constantly recurring elements, and two at least of these are directly suggested by the two most extraordinary features at Lachish—the size of the shrine, which seems out of all proportion to the sanctuary,

and the rows of little offering benches. The first of the two rites is the Sacred Marriage, which is best known from the fifteenth idyl of Theocritus. The capacious shrine—2.50 m. long and 2.25 m. deep—at the south end of the sanctuary looks as if it was made for such a ceremony ; it is too wide for a bier but it would have held two couches exactly—*τὰν μὲν Κύπρις ἔχει, τὰν δ' ὁ ῥοδόπαχυς Ἄδωνις* (Idyl xv, line 128); (One bed Cypris keeps, and one the rosy-armed Adonis)—couches which were occupied by perishable models of the gods or by their human representatives. The small objects found on it—fragments of ivory, an oil flask, finials of fine vessels, lids of spoons, reliefs from a small casket, a faience vase, kohl tubes and alabaster dishes, cylinder seals and scarabs and stray pendants from a faience necklace—are just such as might have been used in a marriage feast or on the persons of the concelebrants. The second rite is the offering of the so-called Gardens of Adonis, the bowls or baskets covered with a little soil and sown with seeds which are to be seen to this day in Sicily and elsewhere in spring as well as in summer. 'At the approach of Easter, Sicilian women sow wheat, lentils, and canary-seed in plates, which they keep in the dark and water every two days. The plants soon shoot up ; the stalks are tied together with red ribbons, and the plates containing them are placed on the sepulchres which, with the effigies of the dead Christ, are made up in Catholic and Greek churches on Good Friday, just as the gardens of Adonis were placed on the grave of the dead Adonis' (Frazer, *Adonis Attis Osiris*, 1906, p. 154). This rite explains the vast number of bowls which were found and the curious offering-benches to which there is no parallel so far as we know in any other temple. Other things also fall into place. The cult of the dead and risen god was a woman's cult—it was celebrated outside the walls because it was a cult of the dead. The many lamps, the altar of incense, the absence of an altar of bloody sacrifice, all are in keeping with this interpretation. Finally, these rites were seasonal rites, celebrated in the spring in some places, in the summer in others, but always at times when the rainy months were past.

Horses and Battle-axes

by Grahame Clark

THE importance of the horse in human history is matched only by the difficulties inherent in its study; there is hardly an incident in the story which is not the subject of controversy, often of a violent nature. This, as we shall see, is partly due to the way in which horses are implicated in some of the problems of prehistory which appeal most strongly to unreasoning group-prejudices. On the other hand the evidence is frequently of its very nature hard to interpret, leaving the field open to hypotheses mutually conflicting, yet each with some claim on our attention. To begin with, far too little is known about the distribution of the various wild *equidae* from which domesticated forms must have sprung. Then, skeletal material relating to the domesticated horses of antiquity is rarest precisely in some of the regions from which we should best like it, owing mainly to natural conditions unfavourable to the survival of bone. Such material as exists from archaeological sites has for the most part been poorly studied. Again, it is frequently impossible to decide whether wild or domesticated horses are in question. As Dr Ulrich Duerst long ago emphasized,[1] lengthy periods of domestication probably elapsed without osteological effects becoming apparent. ' In the horse of a primitive people ', he wrote, ' the quality of tameness is wholly psychological and is therefore not perceptible in an anatomical investigation '. Thus, among dwellers on the steppe the mode of life of their horses will often remain, with brief interruptions, much the same as under wild conditions. This is well illustrated by the familiar scene on the silver vase from the Chertomlyk tumulus on the lower Dnieper, which shows a Scythic camp on the eve of battle with men ' scattered over the steppe, catching the horses which they will ride on the morrow '.[2] Except where, as in the example just cited, the behaviour of men reveals their relationship to horses, representations tend to be as ambiguous as bones. Harness and vehicles rarely survive in more

[1] In R. Pumpelly's *Explorations in Turkestan*, p. 385. Washington, 1904.

[2] M. Rostovtzeff, *Iranians and Greeks*, p. 109 and pl. xxi. Oxford, 1922. See also E. H. Minns, *Scythians and Greeks*, fig. 48. Cambridge, 1913.

than the most fragmentary form, and, while the discovery of metal parts may tell us much, their absence need signify little, since wood, leather, wicker-work and various highly perishable binding materials are all that are needed to create a wide range of both. Representations have to be used with the greatest circumspection. Ideograms and seal-engravings are too small to reveal what may be all-important details. In interpreting larger representations due account has to be paid to technical exigencies such as the tractability of the material worked, and the possibilities of the instrument used by the artist, as well as to aesthetic conventions which may give a wholly false impression to the inexpert eye.

For these and other reasons the theme of man and the horse in antiquity is too broad a one to be treated in the compass of a short article, or for that matter of a short book. All I propose to do here is to examine critically the view propounded by Professor Otto Rydbeck, and since accepted with greater or less reservations by many leading archaeologists, that the possession of the tame horse played an essential part in the rapid spread of the battle-axe folk of European prehistory. If in so doing I succeed in opening up some of the questions seeking solution, I shall feel that my examination has been worth while.

Rydbeck attributed the tremendous expansive power of the battle-axe folk, and the rapidity with which they moved great distances in comparatively small groups, imposing themselves on a variety of neolithic peasant societies as a warrior aristocracy, to their possession of the tame horse.[3] Indeed he goes so far as to picture the demoralizing effect that their appearance on horseback must have had upon the terrified natives. Now, although curiously enough there is no evidence of association in Scandinavia itself, where it cannot yet be proved before the period of the Stone Cists (*c.* 1650–1450±50 B.C.), there is no reasonable doubt that the battle-axe people possessed domesticated horses.[4] Outside Scandinavia, where it may be remarked settlement sites attributable to the battle-axe folk are extremely rare, the association

[3] Published for the first time in 1930, Rydbeck's hypothesis was made more widely accessible in *Medd. från Lunds Univ. hist. mus.*, 1933–4, pp. 77–98.

[4] The following finds are well authenticated :—

Ullstorpsån. A skull dredged from the bed of the stream which divides the parishes of Ullstorp and Qvarrestad, nr. Ystad, Scania. The flint dagger blade, which had been driven into the skull with great force at the juncture of the sutures on the forehead, was broken, but can be attributed with a margin of a century to the period of the stone cists. *Ymer*, 1901, pp. 79–91.

Note continued on page 52

of the horse with corded ware is amply proven. In south Russia horse bones were found with those of oxen, sheep and goats at the settlement of Oussatova,[5] claimed by Rosenburg to be close to the originating centre of the whole ceramic, as well as with corded ware under kurgans.[6] Further north the horse can be associated with outlying sites of the Fatyanovo battle-axe culture.[7] Especially significant are the finds at Złota, the name-site of the hybrid battle-axe culture of southwestern Poland, since the elaborate burials of horses, side by side with oxen, sheep and pig, can hardly be explained on any other basis than that the animals were domesticated.[8] In Moravia and Bohemia the horse, noticeably absent from the Danubian peasant cultures, makes its reappearance with the spread of the corded-ware and battle-axe people at the close of neolithic times.[9] Finally, on the western fringe of the continental distribution one may cite Holwerda's significant discovery of a horse in company with two corded beakers under a round barrow at Emst in Gelderland.[10] The burial of a horse with a man surely implies a close relationship between the two. Rydbeck's assumption that the battle-axe people had tamed the horse appears well grounded.

It is when we come to closer grips with his hypothesis that doubts begin to appear. One may begin by remarking that Rydbeck's own

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Knaggegård, Luttra ksp., Västergotland. Bone from passage-grave with inventory dating from the period of the stone cists. Rydbeck, op. cit.; *Torseke, Fjälkestad ksp., Scania.* Tooth from stone cist, ibid.; *Stora Förvar, Stora Karlsö.* Horse bones from the upper level of stone cist age. J.-E. Forssander, *Die Schwedische Bootaxtkultur*, 211, Lund, 1933.

J. G. Anderson (*Ymer*, 1901, 89) has argued authoritatively against the occurrence of wild horses in Scandinavia. The only evidence to the contrary is a find from a shell-bank in Bohuslän (T. J. Ringström, *Vertebratfynd i finiglaciala skalbankar vid Uddevalla*, 13), but it is notoriously difficult to date such finds decisively. Of the numerous bog-finds the only one to be dated pollen-analytically proved to be of the Iron Age (Rydbeck, op. cit., 78–9). It would therefore appear that horse bones from early sites in Scandinavia can safely be related to domesticated forms introduced from without.

The absence of horse bones from the rich fauna of mesolithic stations in Denmark, whether bog-finds, or kitchen-middens (Clark, *The Mesolithic Age in Northern Europe*, 226–8), argues against the presence of wild forms in that country. The horse bones from the southern chamber of the passage-grave at Stenstrup, Höjby ksp., Seeland, were of stone cist age and so confirm the Swedish evidence.

[5] G. Rosenburg, *Kulturströmungen in Europa zur Steinzeit*, 1931, 15.

[6] e.g. *E.S.A.*, II, 54 and fig. 39 [7] *E.S.A.*, X, 166.

[8] *P.Z.*, 1930, XXI, 2–20 and fig. 13.

[9] See the sites listed by Schnittger (*P.Z.*, II, 178). [10] *P.Z.*, IV, 368–73.

pupil, J.-E. Forssander, while seizing upon a facile explanation for the spread of the battle-axe people, was careful to avoid subscribing to the view that they actually rode the horse.[11] Again, Professor Childe, in commending to readers of ANTIQUITY (1934, 122) Rydbeck's ' suggestion that the rapid spread of the battle-axe cultures is due to the fact that their authors possessed a hitherto unknown means of transport—the tame horse ', is careful not to be more specific, while Hawkes goes out of his way to deny in his recent book[12] that the battle-axe people were horse-riders.

While it is naturally impossible to adduce material evidence against the view that they rode the horse, it is of course quite open to Rydbeck to remark that equally there need be no surprise that direct evidence in favour of his theory is not forthcoming. In the absence of representational art it is hard to see how there could be, since spurs and stirrups both came late in the history of equitation. Prick-spurs date back to the Early La Tène period,[13] but stirrups are substantially later. Their introduction was due almost certainly to the horse-riding people known to the Chinese as Hsiung-nu and to ourselves as Huns. Terracotta grave-figures[14] show that the device was introduced to China during the period of Tartar domination (Wei dynasties, A.D. 386–557). The earliest stirrups known from the West come from Sarmatian tombs in the Kuban district, tombs which range in date from the 1st century B.C. to the 4th A.D.[15] It is likely that they were introduced to the Sarmatians by the Huns in the 4th century, in which case it will be seen that the device reached China and the West about the same date. A point to notice is that early stirrups from either end of Eurasia agree in shape, having a flat foot-rest, reinforced on the under side by a raised rib.[16]

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[11] op. cit. 210–3.

[12] *The Prehistoric Foundations of Europe*, 237. London, 1940.

[13] e.g. That from the La Tène I burial at Trugny, Aisne, referred to by Déchelette (*Manuel*, III, 1202). By La Tène III times there was already a variety of forms, some attached by knobs, some by buckles, e.g. the Stradonitz find (ibid. 1203). An interesting point noted by Déchelette is the frequency with which single spurs are found with early burials. Riders commonly made do with a single spur as late as Merovingian times.

[14] e.g. A figure of a mounted woman bequeathed to the University Museum of Archaeology and Ethnology at Cambridge by Professor Sir William Ridgeway.

[15] Rostovtzeff, op. cit. 130.

[16] This can be seen very instructively in the University Museum of Archaeology and Ethnology, Cambridge, where an iron stirrup left behind by the Huns in Hungary is exhibited side by side with gilt tomb models and bronze originals of T'ang date.

As Ridgeway long ago pointed out,[17] there is archaeological and philological evidence to suggest that the first stage in the origin of the stirrup ' was the attachment of a rope or a strap of leather to the riding-pad to assist the rider to mount '. That such was used by the Scythians is shown by the thong which hangs from one of the horses on the Chertomlyk vase. It is further implied by the derivation of the English ' stirrup ' and the French ' *étrier* ', viz. stirrup, a contracted form of O.E. *stige-rap* (*stigan* = to mount and *rap* = rope), and *étrier* from the old High German *estrifa*, a strap of leather. In the earliest stirrups a metal strip was introduced to strengthen the leather strap. When the whole stirrup was fashioned in metal the raised rib on the underside survived as a reminder.

If we must admit that the strictly archaeological evidence gives Rydbeck some loophole, yet the *à priori* argument against his thesis is overwhelmingly strong, for riding has nowhere been shown to precede the driving of horses in antiquity. Although the evidence is still defective it is possible to observe with some clarity the process of transition from driving to riding in various parts of the ancient world. Thus in China chariots had played a leading part in war for a thousand years before being superseded by cavalry in the 2nd and 3rd centuries B.C.[18] In the Near East riding, although of greater antiquity than in China, was equally certainly preceded by driving. The change-over seems to have coincided broadly speaking with the close of the second millennium B.C. Thus, while a Hittite text of the 14th century may speak of a king mounting a horse, or even of messengers on horseback, it is not until the 9th century that cavalry came into general use in Assyria, Syria and neighbouring regions.[19] A point to notice is that, although the light chariot was everywhere displaced as cavalry came in,

[17] *The Origin and Influence of the Thoroughbred Horse*. Cambridge, 1905, 498–9.

[18] That the use of chariots in China goes back to the Shang dynasty is proved by chariot burials and quantities of gear from Anyang, as well as by inscriptions on oracle bones from the same site recording war chariots in the reign of Wu Ting (1324–1266 B.C.). Under the Chou dynasty (traditional dates 1122–256 B.C.) the importance of states was reckoned in terms of the number of chariots they could muster—we read of ' a state of a hundred (or a thousand) chariots ', just as in medieval Europe power was calculated in terms of mounted knights. H. G. Creel gives much information in *The Birth of China*, London, 1936, especially pp. 149 ff. According to Joseph Wiesner (*Fahren und Reiten in Alteuropa und im alten Orient*. Leipzig, 1939, pp. 89–90), the Emperor Wu Ling (325–299 B.C.) led mounted archers, but cavalry did not take the place of chariots for nearly 200 years.

[19] F. W. Albright in *Archiv. für Orientforschung*, 1930–1, VI, 216–21.

the heavier vehicle used by the Hittites and Assyrians to carry a shield-bearer as well as driver and warrior was retained in use. In Europe the same sequence applies : indeed, so retarded was the transition west of the Rhine that we are able to see it reflected clearly in the experience of the Romans. For instance, whereas in 292 B.C. the Gauls and Samnites mitigated their defeat at Sentinum by routing the Roman cavalry with a thousand chariots, by Caesar's day the Gauls and even the Belgae had changed over to cavalry. Only in Britain did the Celtic peoples continue to use chariots in war up till the time of the Claudian conquest.

Rightly or wrongly Ridgeway was inclined to attribute the priority of chariot driving over riding to the small size of early domesticated horses, which while capable of drawing a light war vehicle were not of sufficient weight to make effective chargers. However this may be, it seems certain, as he himself allowed, that conservatism in the use of weapons played an important part. Whereas fighting on horseback involved quite a new technique, this was by no means so in the case of chariots. Among people wedded to the bow the chariot merely provided a mobile platform for the archer, while among spearmen like those of our own Early Iron Age it was used solely to strike terror into the enemy and convey the warrior into the thick of the fray in which he engaged on foot. Technological was reinforced by social conservatism no less weighty. Among chariot-using peoples the chariot warrior enjoyed a social position comparable with that of knights among horse-riding communities.[20] This, added to the fact that between chariots and cavalry there was no clear-cut advantage, helps to explain why the use of chariots in warfare, once established, tended to persist, and why, on the other hand, once the change was made with all its technological and social readjustments it was sweeping.

Whatever the explanation the essential fact of the priority of the chariot stands out clearly in contradiction to Rydbeck's thesis. If, then, we can no longer attribute the martial successes of the battle-axe people to their cavalry, is there any evidence that they were charioteers ?

[20] Albright, op. cit. 220. The high esteem in which chariots were held is also reflected in correspondence between princes, as for instance in the letters from Tushratta, king of Mitanni, to Amenhotep III of Egypt, found at Tell El-Amarna. A characteristic formula of greeting runs ' may it be well with thee, with thy government, with my sister and thy other wives, with thy children, with thy nobles, with thy chariots and horses, with thy land and with everything which is thine. . . .' *The Tell El-Amarna Tablets in the British Museum*, p. XXXVII. London, 1892.

That they were is the strident contention of the school of pan-Germanists whose doctrines flow from the somewhat lurid teaching of Gustaf Kossinna.[21] Aryan by speech and Nordic by blood we are asked to envisage waves of the *Herrenvolk* borne along in their war-chariots by the noblest of domesticated beasts to their destiny of domination. In silence the proud peoples of the Aegean, of Hither Asia, and of Egypt bowed their heads to the aristocrats from the North. From afar could be heard the jangle of the harness of the horses of the heroes. Of hard northern rock the battle-axes swung from the girdles of the flaxen-haired. . . .

It must be admitted that the appearance of light war-chariots drawn by horses and fitted with spoked wheels for speed came relatively late in the history of the old culture-lands, and it was certainly sudden. Indeed, it is the rapidity of its spread in the 16th century B.C. that makes it so difficult to decide upon the centre of origin and lines of movement. The coming of the war-chariot to Egypt marked an abrupt break, since that country had failed to share in the previous two thousand years of development of wheeled vehicles known by Mesopotamia. There is, however, no shadow of evidence for the traditional view[22] that the war-chariot was introduced by the Hyksos when they conquered the Delta. For one thing, as we are reminded by Wiesner,[23] there is no trace either of horse bones or of horse harness in the Hyksos graves of Egypt, while Petrie's attribution of the Gaza horse-burials to the Hyksos has been dismissed as arbitrary.[24] Much more likely is it that, as Ridgeway suggested,[25] the acquisition of war-chariots enabled the Egyptians to evict their unwelcome guests. Certain it is that the first mention of war-chariots in Egypt dates from the reign of Ahmose

[21] Born in 1858 Kossinna first enunciated his gospel in 1895 in his famous harangue at Cassel. A notable Nordic type himself, he devoted his time as Professor of Prehistory at Berlin (1902–31) to reiterating his central theme. He founded the periodical *Mannus* in 1908 and in it gave currency to the views of himself and his pupils. He was undoubtedly capable of engendering intense enthusiasm and before he died he had become a national figure. That his aggressive Pan-Germanism was rooted in a sense of inferiority is nowhere more clearly shown than in his article 'Höhepunkte nordindogermanischer Kultur', *Mannus Z.* 1919–20, 11–12, 249–75, written at a time of national defeat. In this revealing effort he seeks to restore his countrymen's faith by 'recalling' their legendary prowess in remote antiquity.

[22] e.g. G. Contenau, *La Civilisation des Hittites et des Mitanniens*, 1934, pp. 122 ff.

[23] op. cit. 33 n. 3.

[24] e.g. by von Bissing, *Archiv. für Orientforsch.*, 1936–7, II, 325 ff.

[25] op. cit. 216–9.

(1580–1557), although the earliest representation yet observed dates from a generation or two later.[26] The type of chariot we meet in Hither Asia and Egypt in the 16th century B.C. consisted of a very lightly constructed carriage set midway over the axle on which revolved two wheels each with four spokes. Precisely the same form was already in use among the Mycenaeans at the period of the Shaft Graves (*c.* 1580 B.C.), as shown not only by the well-known stelae,[27] of which it might be argued that the date is not entirely beyond question, but also by the gold ring[28] with deer-hunting scene from grave IV and the silver vessel[29] from the same grave. The similarity in form between chariots over a wide area and the abruptness of their appearance have led many to conclude that their spread must everywhere be attributed to a specific people, an assumption which is probably true only to a limited degree. A point in favour of such a hypothesis is that war-chariots are more than a technical device. They are the outward and visible symbols of a warrior outlook foreign to much of the earlier history of Egypt, the Near East and the Greek Mainland.

Now it is one of the main planks in the Germanist platform that the appearance of a warrior outlook outside northern Europe can only be explained in terms of ethnic movement from that area, the self-appointed hearth and home of heroes. It is thus with a note of triumph that Kossinna and, in greater detail, Jorg Lechler,[30] one of his most devoted acolytes, point to the earliest representations of chariots in the north. Although too schematic to reveal much detail, one of the engraved slabs of the famous tomb at Kivik[31] in Scania shows quite clearly a chariot with two four-spoked wheels drawn by a pair of yoked horses. More informative in some respects are certain engravings found on exposed rock-surfaces in southern Sweden, in which it can be seen that the body of the chariot was set midway over the axle (FIG. 1)[32]. There is no doubt that here in the north we have evidence of chariots

[26] viz. on the grave of User (Thebes no. 21), dating from the reign of Thutmose I (1545–14).

[27] Of the eight representations on the stelae at Mycenae the best known has been reproduced in ANTIQUITY (1936, pl. opp. p. 408).

[28] G. Karo, *Die Schachtgräber von Mykenai*, no. 240 and pl. XXIV. Munich, 1930.

[29] W. von Reichel, *Homerische Waffen*, 2nd edition, p. 13, fig. 17c.

[30] 'Neues über Pferd und Wagen in der Steinzeit und Bronzezeit', *Mannus Z.*, 1933, XXV, 123–36.

[31] For a good photograph see G. Schwantes, *Geschichte Schleswig-Holsteins*, abb. 837.

[32] *P.Z.*, 1912, IV, 201 ff.

of the type which first came into use in the Near East. On the other hand it is only by the most arbitrary chronology that Lechler, following his master, is able to advance these representations as proof of the priority of their originals. Even if it was agreed that the open engravings can safely be assigned to the beginning of the Bronze Age—in fact they went on being made for hundreds of years—this would not, on the basis of modern chronology, make them sufficiently ancient. Kivik, which can be closely dated, has recently been assigned to the period 1000–800 B.C. by no less an authority than Dr Brøndsted.[33] If we can accept the Trundholm sun-car with its four-spoked wheels as evidence that chariots were in contemporary use, it would be possible to allow that such were introduced to the north as early as the period 1300–1000 B.C. There is no shred of evidence for a higher antiquity. It seems likely that the light war-chariot reached the north from Greece by way of the amber route. At least it is certain that, far from standing at the originative centre, the northern chariots as a group are late and peripheral. This is confirmed by the absence from northern Europe of the improved type of vehicle perfected in Hither Asia, in which the axle was attached to the rear of the carriage, so giving the archer a more stable platform and easing the strain on the horses, a development accompanied by an increase in the number of spokes from four to six. The appearance of the new type in Egypt is marked by representations in the tomb of Tutankamen, illustrating the triumph of a predecessor (Amenhotep III, 1411–1380) over negroes and Syrians.[34] Present indications are that the improved war-chariot had spread to Egypt before the primary form had reached the Baltic.

Lechler and others have made great play with the 18th dynasty chariot from Thebes,[35] now at Florence, a fine example of the early four-spoked type. ' Entirely composed of wood joined with pegs or studs of bone, not a single scrap of metal of any kind . . . being used in its construction ', the vehicle is a standing warning of the danger of arguing *ex silentio*. Defective harnessing put a premium on lightness of construction, but skilful choice of materials—oak for pole, axle and spokes, ash for felloes, and hornbeam for yoke—made a strong job. The point seized upon by Lechler[36] is that birch bast was used to bind

[33] *Danmarks Oldtid*, II. København, 1939, 105 ff.

[34] W. Wreszinski, ' Lowenjägd im Alten Aegypten ', *Morgenland*, hft. 23. Leipzig, 1932, abb. 33.

[35] Ridgeway, op. cit. fig. 69.

[36] op. cit. 123.

the spokes to nave and felloes ; but birch trees happen to grow in southern Armenia in the land of the chariot-driving Mitanni,[37] as well as round the shores of the Baltic. Since the Amarna letters specify ' ten wooden chariots, with all their fittings complete '[38] among the gifts sent by a Mitannian king to a pharaoh of the late 15th century, it seems more reasonable to explain the Florence chariot as a royal present from Mitanni than as the relic of a warrior incursion from the far North.

As one of the few items of horse harness to survive, the bit has inevitably come to play an important part in any discussion on the utilization of horses in antiquity. But its significance derives from far more than its mere survival ; the introduction of the bit greatly enhanced the driver's control over his steeds, a consideration which in the case of

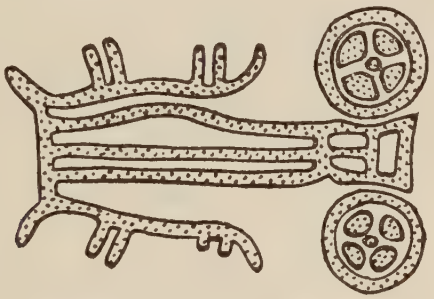

FIG. 1. REPRESENTATION OF HORSE-DRAWN CHARIOT ON SWEDISH ROCK-ENGRAVING
After Almgren

war-chariots with their requirement of rapid manoeuvre was of paramount importance. Indeed, it seems likely that the innovation in horse harness betokened by the bit must be closely related to the widespread use of the war-chariot itself. Conversely it is a good working assumption that early bits betoken war-chariots. For work-a-day wheeled vehicles the halter or head-stall, made of some perishable material such as would leave no archaeological trace, must have been the rule. An early model of a horse's head from Kültepe in Asia Minor[39] reveals a head-stall made from what appears to be leather straps. Much more primitive materials must often have been used. Ridgeway mentioned straw halters as still being in use in parts of Ireland ;[40] rushes and cord

[37] Wiesner, op. cit. 34.

[38] *The Tell El-Amarna Tablets*, XL.

[39] E. Meyer, *Reich und Kultur der Chetiter*, fig. 45, 1914.

[40] op. cit. 240.

are other obvious substances. Indeed, bits were not a *sine quâ non* even for war-chariots. The normal type of harness represented on the funerary monuments of the Late Kingdom which depict chariot scenes consisted of leather nose- and head-bands, secured at their junction by a metal stud. It must be remembered that the whip, commonly illustrated in early representations,[41] was capable of playing a part in guiding chariot horses.

Although, therefore, nothing conclusive can be argued from the absence of bits, their presence is crucial, as the Germanists have been quick to realize. Every effort has been made, not only to establish the antiquity of the bit in northern and central Europe, but also to proclaim it as one more invention symbolic of the warrior-superiority of the Nordic stock. The assiduity, and on occasion, the effrontery with which this object has been pursued, have combined to secure much wider assent than the evidence justifies. The baselessness of such pretensions has been well exposed by Gertrud Hermes[42] to whose papers the reader may refer for a very full statement of the relevant facts. Although perhaps pressing some of her points a little far, she effectively disposes of the case for bits in Neolithic and Early Bronze Age Europe. With the possible exception of a single antler cheek-piece from level B in the Hungarian tell of Tószeg (*c.* 1600–1400 B.C.),[43] the earliest specimens are those from the so-called ' Terremare ' of the Italian Middle Bronze Age.[44] As far as the battle-axe people are concerned the horse-bit is no longer in question.

An exhaustive discussion of origins lies outside the scope of the present paper, but it is perhaps worth pointing out that, notwithstanding some recent confident assurances to the contrary, the thesis of the European origin of the bit is not by any means securely founded. The ' classical ' genealogy of the horse-bit was devised by Forrer,[45] whose scheme may be simplified as follows :—

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[41] e.g. Wreszinski, op. cit., figs. 39 and 60.

[42] ' Das gezähmte Pferd im neolithischen und frühbronzezeitlichen Europa ', *Anthropos*, 1935, XXX, 803–23 and XXXI, 115–29 ; ' Das gezähmte Pferd im alten Orient ', ibid. 364–94.

[43] Childe in *The Danube in Prehistory*, 263. Oxford, 1929. But cf. Tompa (24–5 *Ber. Röm.-Germ. Komm.*, 1924–5), who merely illustrates examples from Füzesabony, dating from Tószeg D (pl. 42, 1 and 2). One may hope for further information when the definitive account of Tószeg at length appears.

[44] T. E. Peet, *The Stone and Bronze Ages in Italy and Sicily*, 353. Oxford, 1909.

[45] R. Forrer and R. Zschille, *Die Pferdetrense in ihrer Form-Entwicklung*. Berlin, 1893.

I, Neolithic	Mouthpiece of wood or bone, articulating directly with harness.
II, Transition to Bronze Age.	Rigid bit with transverse bone mouthpiece set into the rectangular sockets of antler cheek-pieces. (FIG. 2, a).
III, Early Bronze Age.	Rigid bit with twisted metal mouthpiece set into the rectangular sockets of metal cheek-pieces. (FIG. 3, a).
IV, Early Bronze Age.	Metal bit with mouthpiece broken into two linked members, each set firmly into its respective cheek-piece. (FIG. 3, b, c).
V, Hallstatt.	The same, but with the mouthpieces rotating freely in circular sockets. (FIG. 3, d).

Stage I in Forrer's system may be dismissed as hypothetical, while the attribution of stages II–IV can no longer be sustained.[46] Otherwise there is nothing improbable in the sequence as applied to northern and central Europe, the Caucasus and even Assyria, where indeed metal bits show clear traces of their horn or antler prototype in the curvature of their cheek-pieces.[47] It is true, as Hermes has insisted,[48] that horn bits must have served as cheap substitutes for metal ones, but this need not alter the fact that they may also have been the prototype of a widely spread family of metal bits.

The problem of origins is, however, complicated by the existence of bits in Egypt, Palestine and Greece, which show no trace of having descended from any such prototype and yet can lay claim to a respectable antiquity (FIG. 4). Two stages can be recognized, an earlier in which the mouth-piece consists of a single bar, and a later one in which it is formed of two members linked together. A feature which distinguishes them both from the typologically early bits of Europe (Forrer's II–IV) is that all the cheek-pieces revolve freely. Moreover, in no case do the cheek-pieces show traces of the tell-tale curvature. In the early group

[46] e.g. the type examples for stages II and III came from a pile-dwelling (Corcelettes) now assigned to the Late Bronze Age.

[47] Sophus Muller in his ' Charrue, joug et mors ' (*Mém. de la Soc. Roy. des Antiq. du Nord*, 1902–7, 55–9, was one of the first to emphasize the resemblance, though he spoilt it by trying to derive the northern bits from Assyrian ones of the 8th century B.C. Pieces of horn cut from near the tip form the basis of the cheek-pieces of a Frankish bit from Wülflingen, illustrated by Forrer (op. cit., pl. VIII, 9). Professor V. G. Childe has kindly referred me to a bronze bit from a Hallstatt burial at Langenfeld in the Prähistorische Stratsammlung at Munich (Naue coll. no. 95. 185. 2), the cheek-pieces of which reproduce the horn form very convincingly.

[48] *Anthropos*, XXX, 823.

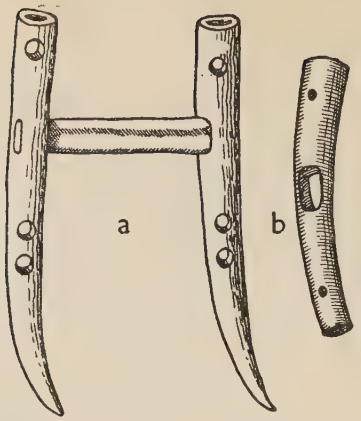

Fig. 2. (a) RIGID BIT WITH ANTLER CHEEK-PIECES AND BONE MOUTH-PIECE FROM CORCELETTES. (½) *After Forrer*
(b) ANTLER CHEEK-PIECE FROM MÖRINGEN. (½) *After Forrer*

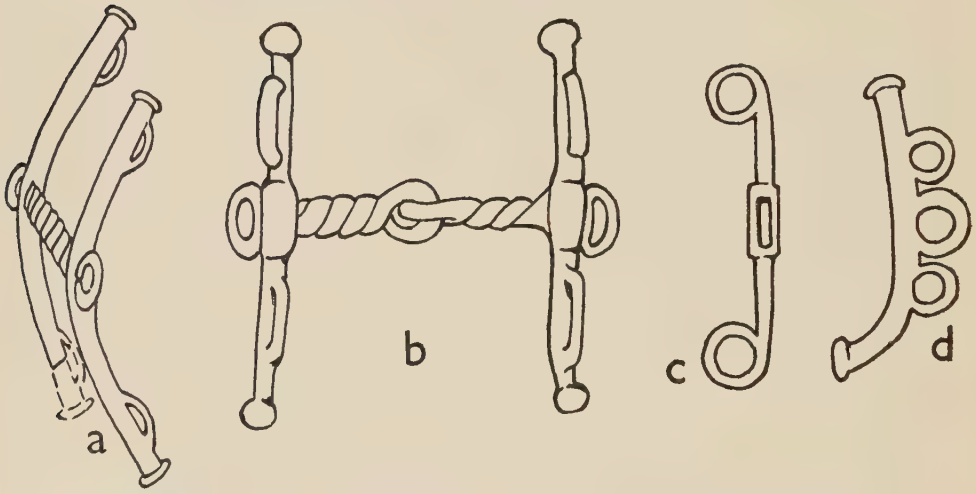

Fig. 3. METAL BITS AND CHEEK-PIECES FROM CORCELETTES (a), MÖRINGEN (b, c) AND KOBAN (d). (*c.* 21/52). *After Forrer*

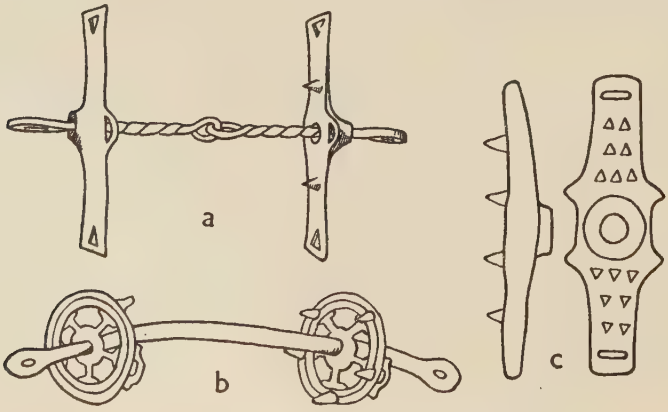

Fig. 4. BRONZE BITS FROM MYCENAE (a) AND GAZA (b, c)
After Reichel and Petrie

they consist either of wheel-like spoked discs[49] or of oblong plates [50] (FIG. 4, b and c); in the later of straight pieces, flat[51] or rounded,[51A] the former having in both cases triangular holes near either end for engaging the bridle straps (FIG. 4, a). In every example from the earlier group, and in one from the later (Mycenae), the inner face of the cheek-piece is provided with spikes, a feature never found in the European series. Of the later group three are of Late Mycenaean Age, but one is of Amarna Age. The earlier group has not been found on sites of later date than the Amarna Age and may go back considerably earlier.[51B] Although there is much to be learnt about the early history of horse-bits it must be obvious that the European origin of the device is more than doubtful. Certainly it can hardly be used to bolster the case for the northern origin of the war-chariot.

If we are to deny steeds or war-chariots to the battle-axe heroes, can we allow them waggons for their horses? The *à priori* evidence argues strongly against. It can be taken for granted that oxen rather than horses were used for heavy draught in early times. The reason is to be found in the mode of harnessing in vogue, which though moderately well adapted to the physique of the ox was hopelessly inefficient for horses. As Lefébre des Noëttes has shown,[52] previously to the introduction of the rigid shoulder-collar in the Early Middle Ages, the main weight of a horse's load was borne by a collar of supple leather attached to the yoke, and encircling the throat in such a way as to press most heavily where the wind-pipe comes closest to the skin. It is no wonder that the loads prescribed for horses by the Theodosian Code were comparatively trifling. Under these circumstances it is not surprising to find that the ox enjoyed a monopoly of work which required heavy pulling, such as drawing the plough or the waggon. If historically the ox was the earliest draught animal in Europe, it still retains its position in certain parts of the continent against the competition of horse and petrol engine. It is true that the smallness of cultivation

[49] Amarna (Wiesner, op. cit., pl. II, 3); Gaza (Petrie, *Ancient Gaza*, III, pl. XXV, 221 and IV, pl. XXXV, 558).

[50] Gaza (ibid., IV, pl. XXXV, 555).

[51] Gezer (R. A. S. Macalister, *The Excavations at Gezer*, II, fig. 214); Mycenae (Reichel, op. cit., 142, fig. 90).

[51A] Miletus (Wiesner, op. cit., pl. II, 4); Amarna (ibid., pl. II, 5).

[51B] Hermes, indeed, follows Petrie in ascribing the Gaza finds to the Hyksos, relegating them to *c.* 1700 B.C. (*Anthropos*, XXXI, 381); but *vide supra* 56.

[52] e.g. *L'Anthropologie*, 1926, XXXVI, 297–308.

plots in Neolithic and Early Bronze Age times, and the absence of manuring, rendered waggons of less importance in the daily round of agriculture than they have subsequently become. On the other hand the extensive character of early agriculture, involving the frequent breaking up of new ground, meant that farming communities must constantly have been on the move, and in this the waggon must have played an important role. As we are reminded by the Ulski model, the epic of the Covered Waggon has a respectable antiquity—only we must substitute oxen for the horses of the film.

Evidence for draught oxen in prehistoric Europe is comparatively rare, because, performing a humdrum task, the ox failed to attract the limelight. Even its harness was simple, made from perishable materials. For plough-scenes we can of course refer to the familiar rock-engravings of Bohuslän and the Alpes Maritimes, and probably to the pair of yoked oxen modelled in copper from Bythin, Posen,[53] though in the last instance we cannot of course be quite sure what the oxen were drawing. As for ox-waggons the most definite evidence is that of the Swedish rock-engravings, in which four-wheeled vehicles were invariably ox-drawn (FIG. 6, b). With reference to what I have said about harnessing it is worth noting that the only evidence for horse-drawn waggons from prehistoric Europe relates to cult vehicles of the Early Iron Age, which it may be surmised carried but slight burdens and were drawn in procession at a leisurely rate. Concrete examples are the noble brass-plated waggon from the Dejbjerg Bog, near Ringkøbing, Jutland,[54] and a similar one from Ohnenheim, Alsace,[55] but schematic representations occur fairly commonly incised on pottery vessels dating from the Early Iron Age. Those from east Prussia published by La Baume[56] depict processions, with the waggon, sometimes preceded by horses, driven by an erect figure or led by a groom on foot. The scene on the well-known sherd from Oedenburg, Hungary, shows a waggon drawing what may well be a situla in procession (FIG. 5). Perhaps we have here a glimpse of a rain-making ceremony similar to that indulged in by the people of Krannon, Thessaly, in ancient times.[57] In periods of drought they would set an amphora on a Holy Waggon

[53] O. Montelius, *Ältere Bronzezeit*, abb. 3 ; Ebert, x, taf. 70a.

[54] Schetelig and Falk, *Scandinavian Archaeology*, 188, fig. 10.

[55] R. Forrer, *Char de Culte à quatre Roues et Trône*. Strassburg, 1921.

[56] ' Bildliche darstellungen auf ostgermanischen tongefässen der frühen Eisenzeit ', *IPEK*, 1928, 25–48.

[57] A. Furtwängler, *Meisterwerken der griechischen Plastik*, 259–61.

' of brass ' (bronze-mounted ?) and, filling it with water, would draw it about in the hope that the liquid splashing over on to the ground would induce rainfall. That a similar practice obtained in France and neighbouring parts of the continent is also suggested by actual remains of such waggons, usually in the form of four-spoked wheels with wooden tyres, sometimes accompanied by a situla.[58]

It has been claimed by Lechler that among certain engravings on the inner face of a megalithic slab forming part of the long cist with

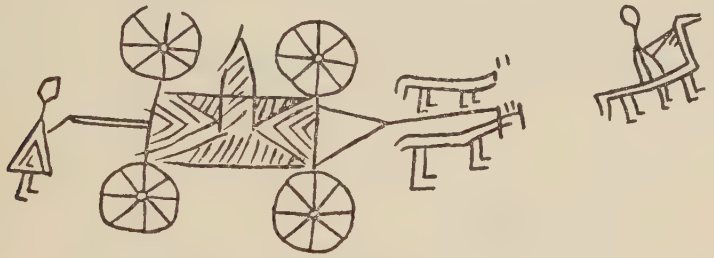

FIG. 5. REPRESENTATION OF HORSE-DRAWN WAGGON IN PROCESSION ON A SHERD FROM OEDENBURG, HUNGARY. (*c.* ⅓). *After Déchelette*

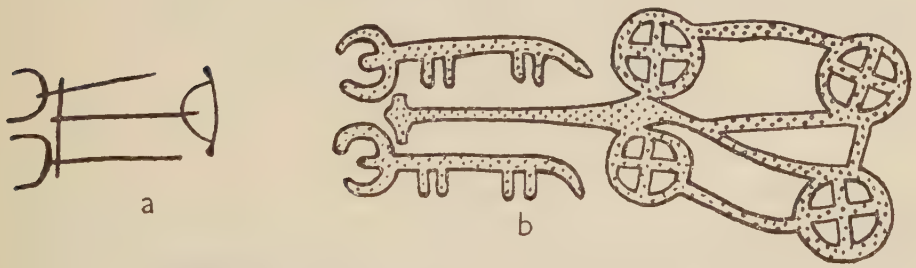

FIG. 6. (a) REPRESENTATION OF OX-CART (?) ON INNER FACE OF MEGALITHIC LONG CIST AT ZÜSCHEN, HESSE. *After Lechler*
(b) REPRESENTATION OF OX-DRAWN WAGGON ON SWEDISH ROCK-ENGRAVING *After Montelius*

portholed cross-slab at Züschen, near Fritzlar, Hesse, there is represented a two-wheeled ox-cart of the type known from early times in Mesopotamia.[59] Comparison of his drawing (FIG. 6, a) with the engraving published by Wahle[60] does not, however, inspire confidence. Until adequate photographs have been published it would be wise to

[58] ' Der Bronzeräderfund von Stade ', *P.Z.*, 1927, XVIII, 154–86.

[59] op. cit., abb. 19b.

[60] *Deutsche Vorzeit*, abb. 15.

leave this find in suspense. The representations do, however, certainly depict yoked oxen with their horns exaggerated in characteristic fashion.

It is likely that the two wooden wheels from the Early Bronze Age lake-dwelling of Mercurago, near Ancona,[61] belonged to ox-drawn vehicles (FIG. 7). Like the much more ancient ones from Sumer each of the Mercurago wheels consist of three pieces.[61A] They differ only in so far as they have been shaped to save weight. In the more primitive of the two, apertures have been formed by removing lunate portions from the two side-members and shaping the middle one, the wheel being held together by cross-ties set in shallow grooves.[62] The other is basically similar, though in this case the process of lightening the

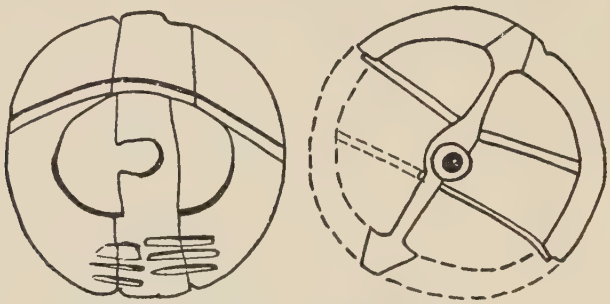

FIG. 7. WOODEN WHEELS FROM MERCURAGO. (*c.* 2/33)
After Déchelette

wheel has been carried a stage further : the side-members have been reduced to mere felloes and the middle one has been more drastically shaped. Again the three parts are held together by cross-ties, aided by dowelling, but here they consist of free-standing struts, which have, however, only the most superficial resemblance to radial spokes. Solid disc-wheels with small lunate openings on either side of the axle-hub have been recovered from Jutish bogs, a complete one from Tindbœk Mose, Viborg, and another, fragmentary, from Dystrup, Randers ;

[61] Déchelette, *Manuel*, II, 289–90.

[61A] Similar wheels are still found on ox-waggons in different parts of Europe, e.g. *J.R.A.I.*, 1881, 80, fig. 12 ; ANTIQUITY, 1929, pl. II, opp. p. 341.

[62] No adequate drawings of the wheel have been published, but Déchelette's photograph suggests that the system of tie-pieces, set in grooves, was more complex than existing line illustrations suggest (e.g. F. Keller, *The Lake Dwellings of Switzerland and other parts of Europe*, 1866, pl. VIII, 20).

unfortunately neither of these wheels, almost certainly from ox-carts, can be dated.[62A]

Some light is thrown on the use of oxen for haulage by the wooden yokes sometimes found in bogs and lake-sites, though these have to be treated with circumspection. It is not always easy to decide whether a given specimen was used by horses or oxen, or whether in the latter case for plough or waggon. If the attribution of the double yoke from Petersfehn, Oldenburg,[63] to the Neolithic period (on the basis of pollen-analysis) is accepted, one cannot doubt that it was used for oxen, though its rather crude character makes closer diagnosis impossible. A more delicately wrought example described as from a 'Neolithic' pile-dwelling on the Bielersee in Baden[64] has a better claim to be considered

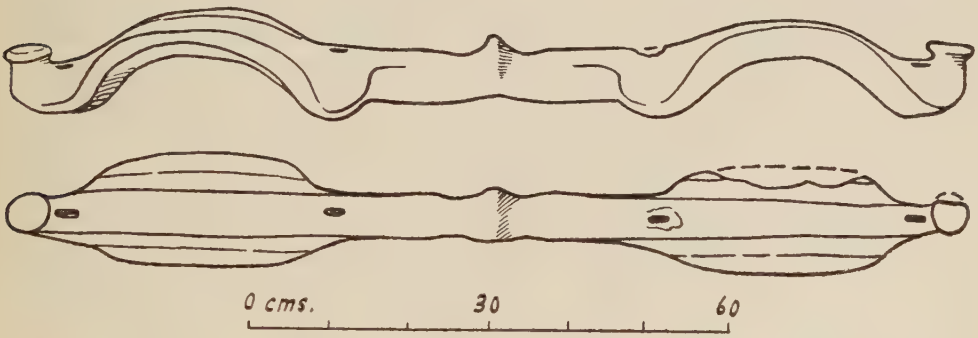

FIG. 8. WOODEN YOKE FROM LA TÈNE
After Vouga

as a piece of waggon harness. Of the two yokes from La Tène, the elaborate nature of which indicates that they were used for vehicles, Vouga considered it likely that the larger was used for oxen (FIG. 8), the smaller for horses (of the small Celtic variety).[65] It is worth remarking that the treatment of both suggests a metal prototype, bringing to mind an Etruscan bronze yoke at Florence.[66] The series of delicately made yokes from various bogs in Jutland, described by Sophus Muller[67] and most likely dating from the Early Iron Age,

[62A] Brøndsted, op. cit., I, 149, fig. 93.
[63] E. Sprockhoff, *Die Nordische Megalithkultur*, 136, fig. 91.
[64] Ebert, X, taf. 70.
[65] P. Vouga, *La Tène*, 96. Leipzig, 1923.
[66] Reichel, op. cit., fig. 70.
[67] op. cit. 41–53.

may have been used either for ox-waggons or perhaps for horse-chariots or ritual waggons of the type to which allusion has been made above.

It is of course possible that the battle-axe people maintained their horses purely as a source of food, for their meat and mares' milk. On the other hand it is possible that they had taken a first step towards utilizing the motive power of their horses by using them as pack animals. It is significant that in Egypt, to which wheeled transport came late, pack animals were greatly used ; the ass is constantly represented as the beast of burden.[68] In Crete the mountainous nature of the country hindered the widespread use of wheeled vehicles and here also we find evidence of the use of the ass as a pack-animal.[69] It seems only reasonable to expect that the horse must have served the same purpose in north-western and central Europe where the absence of roads was aggravated by climatic conditions : indeed, we know from the recent history of our own country that before the construction of metalled roads pack-horses[70] played a far more considerable part than wheeled transport, and that up till the time of railways their role was an important one. Unfortunately like so many of the more significant activities of economic life the use of pack-horses has left only the slightest traces in the archaeological evidence. The only example of a wooden pack-saddle that comes to mind from prehistoric Europe is that from La Tène (FIG. 9):[71] one may imagine basket panniers or other containers hanging from the hooks which project from the framework.

The conclusion to which I am driven by a process of elimination is that, in so far as the battle-axe people used their horses for transport at all, they employed them as pack-horses. I shall round off this essay by suggesting that such a hypothesis accords very well with what is known of the introduction of the horse to Asia Minor, an event which there is reason to believe was accompanied by the spread of battle-axes.

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[68] For an amusing picture of a laden ass in ancient Egypt, see G. Hatt, *Landbrug i Danmarks Oldtid*, 1937, fig. 37.

[69] For a clay model (LM) of an ass carrying water-jars, see *The Palace of Minos*, II, fig. 79. Traces of a pack may be seen on the ass in the Early Bronze Age plough-scene from Cyprus published by Dikaios in *Man*, 1933, no. 134 ; also *Archaeologia*, LXXXVIII, pl. IX.

[70] See, e.g. Dr G. B. Grundy, *Arch. J.*, LXXIV, 83 ff.

[71] I base my illustration (fig. 9) on Vouga's suggested reconstruction rather than on that exhibited by the National Museum of Antiquities, rightly condemned by him, although illustrated in his book (op. cit. fig. 10).

That battle-axes reached western Anatolia[72] at an early date is proved by their occurrence at Troy II (2500–2300 B.C.), Thermi and Yortan. Further east they seem to have arrived rather later. At Alişar they do not appear until stratum II, dated by Cappadocian tablets to round about the 20th century B.C. Parallel with this easterly drift was the southward incursion into Greece recently emphasized by Fuchs.[73] The fact that battle-axes appear to have broken into established cultures without influencing their pottery[74] could be explained

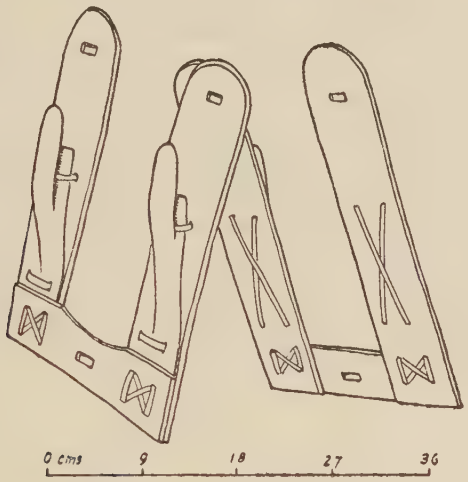

FIG. 9. WOODEN PACK-SADDLE FRAME FROM LA TÈNE

by the spread of a warrior class, small in numbers but potent in influence. It may well be that the newcomers introduced the horse, bones of which were recovered from Troy II,[75] and perhaps, also, the

[72] For Anatolia the best reference is Kurt Bittel, *Prähistorische Forschung in Kleinasien Istanbuler Forschungen*, bd. 6, pp. 147. Istanbul, 1934. A useful series of battle-axes is illustrated.

[73] S. Fuchs, *Die griechischen Fundgruppen der frühen Bronzezeit und ihre auswärtigen Beziehungen*. Berlin, 1937. Especially pp. 95–139.

[74] At Eutresis (H. Goldman, *Excavations at Eutresis in Boeotia*, 123 and fig. 169. Cambridge, Mass., 1931) and at Hagios Mamas (Heurtley, *Prehistoric Macedonia*, 172 and fig. 46a. Cambridge, 1939), both sites which have yielded battle-axes, a few corded ware sherds have been obtained. So far as I know, no similar finds have been made in Asia Minor.

[75] Virchow in *Z. für Ethn. Verh.*, 1879, 269.

Aryan language.[76] From Kültepe, in addition to the clay model of a horse's head already mentioned, there comes a cylinder-seal impression on a Cappadocian tablet, whereon is depicted a two-wheeled vehicle closely resembling those on the Royal Standard of Ur,[77] but drawn by horses instead of onagers.[78] It may be noted that not only is the vehicle on the Kültepe seal of Sumerian type, but the method of harnessing is also Sumerian: the reins are drawn in such a way that they can only have approached lip-rings of the type used for onagers in Mesopotamia.[79] Finally, one may cite two copper rein-terrets from Boghaz-Keui which agree closely with that found by Woolley in Queen Shub-ad's grave at Ur and reproduced in ANTIQUITY (1935, pl. I., opp. p. 133): yet on one of these terrets we find the earliest representation of the horse from Hither Asia,[80] a dramatic scene, depicting a man in the act of taming a horse. In other words we have the spectacle of newcomers introducing the horse, yet harnessing it to vehicles of Sumerian type by means evolved in Mesopotamia, from which the horse was as yet unknown. The conclusion is irresistible that the horse was brought into Asia Minor by people who had not themselves harnessed it to wheeled vehicles, warriors issuing from that home of battle-axes and horses, the belt of open country which extends from the Baltic to the Black Sea.

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[76] e.g. Fritz Schachermeyer, 'Wanderungen und Ausbreitung der Indogermanen im Mittelmeergebiet', *Hirt Festschrift*, 233–5. Heidelberg, 1936.

[77] As in the Ur representations the two wheels have been shown one in front of the other, and the high front of the vehicle has by the same convention been unfolded so as to be fully visible in profile. See E. Meyer, *Reich und Kultur der Chetiter*, figs. 43, 44.

[78] See Hilzheimer, ANTIQUITY, 1935, XI, 133.

[79] Claude Schaeffer has shown ('Neues zur sumerischen Anschirrung', *P.Z.*, 1935, XXVI, 203) that Hilzheimer erred when he wrote of *nose*-rings.

[80] Referred to the latter part of the 3rd millennium by Rostovtzeff (*Syria*, XII, 48–59) and other leading authorities (e.g. H. R. Hall and W. Andrae).

Nigerian Bronzes: work from Ife

by K. C. Murray

AFTER a little experience of West African peoples, a European becomes aware that their culture has become much degraded, although very many admirable features remain. During recent centuries two external forces have been exerting their influence on this part of the world:—Islam has entered from the north across the Sahara, and Europeans from the south by the sea. Islam destroyed what existed before, but in its place built up a new civilization which had its own virtues. Europe in its slave-trading from the 16th to the 19th century destroyed and gave nothing except brutality until, about one hundred years ago, it introduced Christianity, education, and mechanical devices. Because historical records do not exist to correct the external impression, a European might now, from a casual glance, easily think that the Negro is being raised by Islam and Europe from an original state of savagery. The reaction, therefore, when any examples of superior craftsmanship or art have been discovered has been to declare the work not African in origin, but European. Perhaps this attitude, which even yet exists, has led to the neglect of West Africa by archaeologists. When, after the sack of Benin by a British punitive expedition in 1897, a number of bronzes and fine ivories were brought to England from that city, some to be sold as scrap material, the common verdict was that the best were the work either of Portuguese or of men working under their direct influence, while those of less quality were made by Africans who, after the withdrawal of Portuguese influence, had gradually returned to their barbarous negro ways until their city became the 'City of Blood'.

Apart from prejudice, the evidence that the Benin bronzes were made under Portuguese influence is based on the following facts[1]:—(*a*) the Portuguese visited Benin in 1485 and, according to local tradition, it was about then that the finest bronzes were made; (*b*) Portuguese soldiers in the equipment of the 15th and 16th centuries are represented

[1] See C. R. Read and O. M. Dalton, *Antiquities from the City of Benin*. 1899.

in some of the bronzes ; (*c*) a Benin tradition collected in 1897 states definitely that the people learnt to work in bronze from a white man in the time of king Esige, who reigned at the beginning of the 16th century ; (*d*) analysis of the bronze suggests that the copper came from the Iberian peninsula.

On examination the evidence is found to be very flimsy. No attempt is made to show that the Benin style of work had any resemblance whatever to 15th century Portuguese work. The fact that Portuguese with fairly accurate details of their equipment are represented in some of the plaques proves nothing, since the representations of Africans are equally detailed and, moreover, the proportions of the figures with large heads and short legs are characteristic of African work. The belief that a white man introduced the work appears at first sight to be stronger evidence, but a date is given for its commencement before the coming of the Portuguese and, moreover, so-called ' white men ' in the western Sudan have been generally accepted as Berbers or people from the Nile valley. The ' white man ', therefore, was not necessarily a Portuguese. The analysis of the bronzes is equally unconvincing, for while it offers the possibility of Iberian origin for the metals, it does not disprove by the analysis of metals from other sources that they have other origins, while in any case the bronze could have been imported along the trade routes across the Sahara.

The arguments for Portuguese origin for Benin bronzes failed to explain why nothing resembling them had been found elsewhere along the coast, and disregarded the Ife traditions for which such evidence might be found. Ife is the traditional home of the Yoruba tribe ; from there went the children of the founder to establish the various Yoruba States, of which Benin was one. The king of Benin acknowledged the spiritual suzerainty of the Oni, or king, of Ife ; and at the time the Portuguese came to Benin the connexion was still maintained. The Bini ambassador who went to Portugal at the end of the 15th century described a great king named Ogane, whose assent according to ancient custom was necessary on the accession of a new king of Benin to whom he sent a staff, a cap of brass and a cross. This ruler, now believed to have been the Oni of Ife, was supposed by the Portuguese to be Prester John.

In 1910 Leo Frobenius visited Ife and discovered a beautiful bronze head known as the Olokun (PLATE I). This has recently been placed in the palace of the Oni, where there is a fine life-size bronze

PLATE I

BRONZE FOUND AT IFE, NIGERIA, REPRESENTING OLOKUN, THE SEA GODDESS, MOTHER OF OBALUFON I, THE SECOND ONI, OR KING, OF IFE

Ph. E. H. Duckworth

BRONZE MASK OF ALAIYEMORE, OBALUFON II, KING OF YORUBA

Ph. E. H. Duckworth

facing p. 72

PLATE II

BRONZE HEAD FOUND AT IFE, NIGERIA, 1938
Ph. E. H. Duckworth

PLATE III

BRONZE HEAD FOUND AT IFE, NIGERIA, 1938
The bronze has turned a beautiful green
Ph. E. H. Duckworth

PLATE IV

SIDE VIEW OF BRONZE HEAD FOUND AT IFE, NIGERIA, 1938
The small holes on the face penetrate to the interior
Ph. E. H. Duckworth

mask known as the Obalufon[2] (PLATE IV). In 1938, during the building of a house, eleven more bronze heads (see PLATE III) were found and brought to the palace. Two others which were not seen by the Oni were taken to America[3], and another obtained by an English journalist was fortunately secured by the British Museum. Since then other finds have been made, including part of a complete figure, but they are now protected by a Government ordinance and kept at Ife, though not with the care that their value and beauty deserves.

These bronzes revolutionize the common assumptions about negro art: they are more akin to the sculpture of the Renaissance than to the typical art of Africa. An extraordinary thing about them is their faultlessness of workmanship and their isolation as a style. None has been found at Ife which suggests their evolution: there is nothing to show progress up to, or decline from, their perfection.[4] Except in one instance (at Tadda in Nupe province), no other bronzes have been found that have any direct resemblance. Some people have thought that they were not made at Ife, but were brought from elsewhere. The heads represent people of refined negroid type, so were probably made in West Africa. The existence of the delicate terracottas in an identical style makes it unlikely that they could have been brought from far; but if they came from some distant place then the occurrence of the *cire perdue* technique among neighbouring tribes remains to be explained, and especially how the early work at Benin came to be so good. It must be remembered that negro art is at present mostly represented by wood-carvings, of which few examples can be more than a century old. Yet even among these, which are the product of a time of complete political and religious disruption, it could be shown that naturalism is a more frequent occurrence than is commonly supposed.

Frobenius believed that the Ife bronzes and terracottas were made during the second millennium before Christ, and were the product of a civilization that followed a much older 'Atlantic' culture, which had spread eastwards into the Mediterranean and southwards along the coast of Africa.[5] He recognized certain cultural features that are

[2] The present Oni in a letter states that the Obalufon (and the Lajuwa, one of the finest of the terracottas) 'have always been at the Afin since they existed'.

[3] *Illustrated London News*, 8 April 1939.

[4] With further investigation it may be found that the terracottas divide into an earlier and a later group.

[5] Leo Frobenius, *Voice of Africa*. London, 1913.

common to North and West Africa, but are not found inland in between. He claims that certain resemblances between the Yoruba and Etruscan cultures were due to this common origin, among which were features in their terracottas, and in the use of a flower and bud design which appears in the diadem of the Olokun. This Atlantic state in Yoruba land had, however, been isolated from its mother country and so was forgotten at the time of the reported circumnavigation of Africa by the Phoenicians in 610 B.C., and of the Carthaginian expedition under Hanno in 500 B.C. It is not denied that there are traces of Carthaginian influence in West Africa[6] yet Frobenius's theory is generally considered far fetched. Amaury Talbot has tentatively suggested[7] that a bronze pendant found in the Cross River district may be Carthaginian, but comparison with bronzes found near Awka suggests that another and more recent origin is probable.[8]

The Ife bronzes, in spite of the convincing arguments of Ling Roth[9] and Amaury Talbot[10] are believed by some to be the work of Portuguese. It is claimed that about 400 years ago Ife became for a time Christian, and that this religion, together with bronze working, were probably brought by Portuguese from the Roman Catholic mission which had been established near Benin at the end of the 15th century. There is no record whatever that the Portuguese ever went to Ife, or even penetrated beyond Benin. Moreover if Christianity did reach Ife it could as well have come from the east as from the coast. Contrary to work going to Ife from Benin it is said that the Bini obtained bronze masks of their deceased kings from Ife, and that the first brass-caster came to Benin from that town in 1380. If the Portuguese had been responsible for both the Ife and the Benin bronzes and terracottas there would have been a close similarity in style, but this is not the case, whereas the latter have several features in common : the same method of casting—*cire perdue*—was evidently used ; the heads are almost life-size, and most are cut off at the base of the neck, with holes in the top in which, in the case of the Benin bronzes and terracottas, elephant tusks were fixed. In style there is a complete difference. Ife work is refined and accurate portraiture, while that of

[6] W. D. Hambley, *Culture Areas of Nigeria*. Chicago, 1935. Has some additional evidence of Carthaginian influences at Ife.

[7] P. Amaury Talbot, *In the Shadow of the Bush*, pp. 172–3. London, 1912.

[8] J. O. Field, *Bronze castings found at Igbo, Southern Nigeria*. *Man*, January 1940.

[9] H. Ling Roth, *Great Benin*, pp. 226–34. London, 1903.

[10] P. Amaury Talbot, *Peoples of Southern Nigeria*, vol. I, 280–1. London, 1926.

Benin is conventionalized. A comparison of details is illuminating: for instance the difference between the subtle modelling of the Ife work and the smooth simplified curves of the Benin; or the treatment of the eyes and ears in the Ife heads compared with these features in the well-known head of a Benin princess in the British Museum. The finest examples from Benin are the earliest, yet although they are more refined than the later and show some of the Ife sensitiveness, they are very different.[11] In order to prove that the Portuguese introduced bronze work into Ife it would be necessary to show a progression in style from the work of Benin to that of Ife. It would, however, be against all the evidence; at no time, indeed, does Benin work show any development towards naturalism: its whole tendency is the reverse, and modern Bini and Yoruba work, especially brass-work, is almost completely formularized.

Another and more likely theory suggests that Egypt was the originating influence of the Ife industry. It is known that from very early times western Sudan must have had connexions across the Sahara with North Africa and Egypt, and in all parts there are cultural features that point to this relationship. The origin of *cire perdue* casting is not known, but Egyptians were using this method in 1600 B.C. The Yoruba, who are believed to have entered their present land between 1000 and 500 B.C., possibly on account of events in Egypt that set in motion a migration of peoples towards the west, have many features in their culture that must have been transmitted. Sir Flinders Petrie has drawn attention[12] to the resemblance in style between the Ife work and terracottas of the 6th century from Memphis. On one important point, however, he was misinformed: he thought that the terracottas, like those of Memphis, were modelled solid, and used this fact as a proof of their common origin. They are actually hollow and remarkably light. It is perhaps significant that the Ibo and Ibibio tribes, who preceded the Yoruba in Nigeria, and show very many signs of Egyptian influence, do not cast in bronze or brass. This fact, which indicates that the knowledge of bronze-working in Nigeria did not come from dynastic Egypt, also suggests that neither did the art exist in Nigeria in earlier times, but only began with the Yoruba.

[11] E. Von Sydow in *Africa*, vol. I, 1928, page 216 claims that certain terracotta heads from Benin (e.g. see Pitt-Rivers, *Antique Works of Art from Benin*, plate 46, figs. 365–6) are similar to those found by Frobenius at Ife, but a detailed comparison does not bear this out.

[12] Sir Flinders Petrie, *Ancient Egypt*, pp. 84 and 169.

Legends concerning the origin of the Yoruba seem to deal with the establishment of a ruling dynasty. It is believed that in the second millennium before Christ a people known as the Kushites began to enter the Horn of Africa from Mesopotamia and later gradually spread westwards. Known as Zaghawa by the Arabs, they occupied, between A.D. 100–1000, the fringes of the Sahara from the Nile to the Niger, by what appears to have been a gradual infiltration of small groups who settled among and became the rulers of the inhabitants. It was then and in the following centuries that the Sudanese states reached their highest development, as confirmed by Arab writers of the 14th century. In degree of civilization their culture seems to have differed little from other pre-machine age cultures. Among the Kushites were traces of Christianity, for they had been in close touch with that religion in Egypt and Ethiopia, and some of them indeed may have been Christians of the Coptic Church. They brought many crafts with them and in Sir Richmond Palmer's opinion, ' it is hardly open to doubt that the crafts and arts for which today the Jukun, Hausa, Nupes and Songhay are famous . . . were brought by the Kushite Zaghawa races, or parts of them '.[13]

According to the account by Sultan Bello of Sokoto collected by Clapperton the Yoruba were of the tribe of Nimrod, and coming from Arabia crossed Africa to their present territory, leaving some of their own people in every place where they stopped.[14] They claim for their ancestors relationship with the kings of Gobir and Bornu, and that Oduduwa, the founder of their race, was the leader of a band of Bornu immigrants. It is interesting to note that Oduduwa's wife is said to have been Omonide—the child of brass.[15] More particularly are they connected, together with other states including the Jukun, the Nupe and Songhay, with a migration from the east that took place in the 7th century A.D. and centred round a certain Kisra, whose name has been identified with that of Chosroes, the Sassanian king of Persia who attacked Egypt at that time. Kisra, after passing through Bornu, reached the Niger, from whence part of his followers went to Nikki in Dahomey and part remained with him at Bussa in Borgu. The establishment of a Nupe kingdom to which the Yoruba paid tribute for

[13] Sir Richmond Palmer, *The Bornu Sahara and Sudan*, p. 148. London, 1936.

[14] Denbigh and Clapperton, *Narrative of Travels and Discoveries*, p. 165. London, 1826.

[15] R. E. Dennett, *Nigerian Studies*, p. 75. London, 1910.

600 years is associated with him, and there is a tradition that about 650 they had a new dynasty that came into the country by way of Borgu. According to Frobenius the Yoruba threw off their subservience to the Nupe about 1275, and Amaury Talbot dates the beginning of the Yoruba dynasty at Benin to 1300. If these dates are correct they suggest that the departure of the descendants of Oduduwa to found the various Yoruba states took place at the end of the 13th century. Lajuwa and Obalufon, who are represented by a terracotta and a bronze mask respectively, were rulers who would have been living shortly after that time.

Bronze work in West Africa is done by tribes coming within the area possibly influenced by the Kisra peoples. The Nupe now beat out utensils such as bowls, but they and the Hausa still do some *cire perdue* work. At Jebba and Tadda on the river Niger in Nupe are some complete ancient bronze figures : one squatting figure has a head resembling Ife work, but the others are different in style. The Yoruba still do *cire perdue* casting, and so do the Dahomians and the Ashanti. The Jukun at one time had a great reputation for their metal-work, and Frobenius mentions a Nupe belief that the craft came from the Benue. The Igla are related to the Yoruba ; and their ruler, the Atta, has among his regalia two fine bronze masks, which appear to be early Benin work.[16] The Tiv in Benue province, the Bura in Bornu province, and the Bamun in the Cameroons—who describe the art as an adaptation from an invading people from the northeast[17]—possessed the technique, and so have the Bobo, Mossi and Baoule much further west who may have obtained it through Songhay.

It is difficult to relate certain stone carvings in Yoruba country with the bronzes and terracottas. Some are at Ife and include monoliths, carved figures, and quartzite stools, but are not nearly of such fine workmanship as the bronzes and terracottas. Even allowing for the difference in material, it is hard to believe that these stone carvings could have been made at the same period. A few, mostly in east Nigeria, appear to be of great antiquity, but some found in Ilorin province seem to be of recent date.[18] Of these there are said to be two types : the older one carved in sandstone, and the more recent in soap-stone. Published photographs do not distinguish these, but most have the

[16] G. M. Clifford, *A Nigerian Chiefdom.* Journal of the Royal Anthropological Institute, vol. LXVI, 1936.

[17] W. D. Hambley, op. cit. p. 400

[18] F. de F. Daniel, *The Stone Figures of Esie. J.R.A.I.* 1937.

characteristics of modern Yoruba wood-carvings: for instance, large eyes isolated from the face.

The source of the materials used for the Ife and other Nigerian bronzes is a problem whose solution would help to show their origin. Tin and zinc provide little difficulty, for ancient lead and zinc mines exist in Ogoja province and tin was worked in Bauchi province. Various writers have stated that copper could be found in Nigeria. For instance Amaury Talbot says ' there is little doubt that up to recent years it was obtained from many local sources ' and mentions the Ogoja mines.[19] Richard Burton wrote in 1863 that ' Copper is said to be found in the mountains to the east of Abeokuta '[20] and ' Kakanda . . . extends from Yoruba Proper to the Niger and Kwara rivers. This province is very little known, but the people are celebrated for working copper, of which they are supposed to have mines. In Kakanda is the celebrated Ife '. . .[21] Macgregor Laird in 1833 tried without success to get some of the ore used in making the copper articles that he saw; but the natives all agreed ' that it came down the Shary (Benue) from the eastward '.[22]

The Director of the Nigerian Geological Survey states in a letter (April 1940):—

' Small amounts of copper ore are known from many parts of Nigeria but no large deposits have been found.

In the abundant lead-zinc deposits of Ogoja province copper ore is sometimes present and it is evidently to this that Talbot refers.

Samples of mixed ore in which copper is a prominent constituent have been sent to this Department from Niger and Sokoto provinces and such ores are known to occur in Plateau province; but the veins from which they come are small and have not been worked in time prior to European contact with West Africa.

There are no indications that copper mines existed between Ife and the Niger, or east of Abeokuta. Had there been as late as 1863 there would be traces of them today and they could not have escaped the attention of Administrative Officers or intelligent Africans.

Macgregor Laird's report has always been of considerable interest and if true the origin of the copper ore is indeed a mystery. Similar lead-zinc deposits to those of Ogoja are known both north and south of the Benue at Zuruk and Arufu but the amount of copper in these is negligible. There is no record of any other large mines or excavations in this part of Nigeria. One is forced to believe that the ore must have been brought from a great distance and far from the boundaries of what is now Nigeria '.

[19] P. Amaury Talbot, *Peoples of Southern Nigeria*, I, 18.

[20] Richard F. Burton, *Abeokuta and the Cameroons Mountain*, I, 133. 1863.

[21] Richard F. Burton, op. cit. p. 226.

[22] Macgregor Laird and R. A. K. Oldfield, *Narrative of an Expedition into the Interior of Africa*, I, 231. 1837.

There are two sources of copper outside, but within reach of Nigeria : Tegidda and Darfur. The former is known from Ibn Batuta's description of his visit in 1353. Copper ingots from there were exported to ' Gobir in the country of the infidels ' and to Bornu. Henry Barth found nothing known of these mines when he visited Agades[23] and no trace of them has been found since. Tegidda is an important salt-making centre and therefore Sir Richmond Palmer suggests that possibly the word for copper—nahâs—is a corruption of natrun, salt.[24] There is no doubt, however, of the existence of copper at Darfur or of it being exported to Nigeria. Barth met a caravan from there carrying copper to ' as far as Kano towards the west, where this fine copper rivals the old copper which is brought by the Arab caravans from Tripoli '.[25] The copper that according to Macgregor Laird came down the Benue may therefore have been mined at Darfur, which had been inhabited before the 16th century by a Zaghawa tribe : the Taju or Daju, who were part of the Kwararafa confederation of tribes whose rulers were called Jukon by the Hausas.[26]

Quantities of copper and brass were also imported into West Africa from across the Sahara. E. W. Bovill has an interesting reference to an Italian who travelled in Africa in 1477. ' He found in Tuat a demand for many kinds of goods, but the chief articles of commerce were copper and salt, the former being imported from Alexandria for sale to the Sudan, though what the negroes could want with it he was at a loss to understand '.[27]

The comparative lack of copper in Nigeria and the non-existence of bronze working among the older tribes make it unlikely that the craft started in that territory. It seems probable that it was introduced by a branch or branches of the Kushites, possibly by Kisra, who would have passed through Darfur on their way to Bornu and Nigeria. Other crafts, to judge by their distribution in Nigeria, may have come to the Yoruba about the same time : the use of the narrow treadle-loom, tied dyeing, and interwoven patterns in wood-carving. It is not clear whether Oduduwa had any connexion with Kisra or whether he succeeded or preceded him, but since bronze work appears in the areas connected with Kisra it might be assumed that the industry did not

[23] Henry Barth, *Travels and Discoveries in North and Central Africa*, I, 465. 1857.

[24] Sir Richmond Palmer, op. cit. p. 73, note.

[25] Henry Barth, op. cit. III, 347. See also pp. 557 and 559.

[26] Sir Richmond Palmer, op. cit. p. 146–7 (also pp. 191, 212–13).

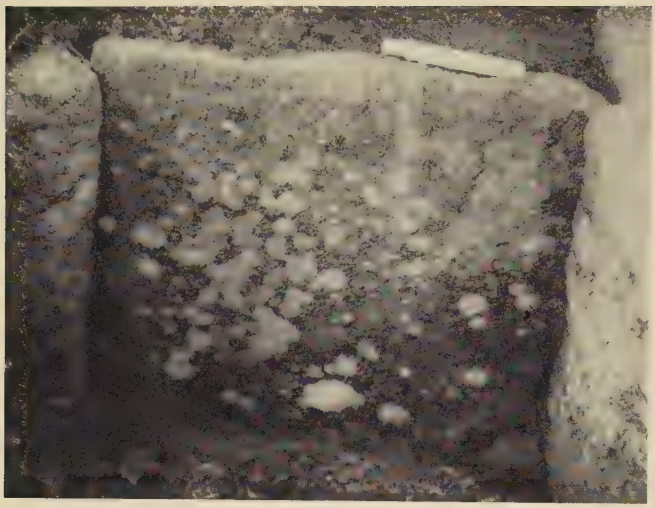
[27] E. W. Bovill, *Caravans of the Old Sahara*, p. 134. 1933.

begin among the Yoruba before the 7th century, and that it came to perfection at Ife not later than the 13th century, when that town was once more independent of Nupe. If, as the belief suggests, a bronze worker went from Ife to Benin about a century later to teach the craft there, the similarities as well as the differences between the earliest Benin bronzes and those of Ife could be understood. The Benin craftsmen simplified and conventionalized the style they had learnt from Ife and altered its proportions. Although the art kept its realistic basis, as opposed to the imaginative basis of most negro art, it tended to become more typical.

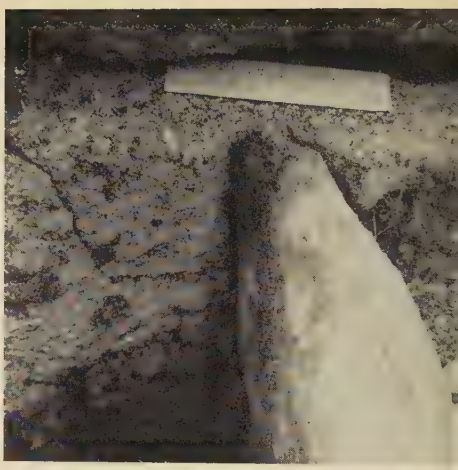
Further research and systematic excavation, which has never yet been carried out, is needed to confirm these suppositions, and to establish the relationship between the different forms of bronze and brass work in West Africa. There has been no history written except Frobenius's *Voice of Africa* which has studied the Yoruba and their early legends, and followed their relationship with other peoples of similar culture back across the Sahara to Upper Egypt. Thus E. W. Bovill's *Caravans of the Old Sahara* only deals with the northern Sudanese states and not with their eastern connexions, while Sir Richmond Palmer in *The Bornu Sahara and Sudan* does not trace the movements he records into Southern Nigeria.[28] Excavations made at Ife should produce valuable information, and might also be fruitful at other places, for instance at Kororofa, the old capital of the Jukuns and at the holy hill mentioned by Frobenius.[29] It is most improbable that the evidence of the former civilization of West Africa has been exhausted.

[28] P. Amaury Talbot in *Peoples of Southern Nigeria* and C. K. Meek in *Northern Tribes of Nigeria*, 1925, give general descriptions of the legends and theories about the origin of the Yorubas.

[29] Leo Frobenius, op. cit. p. 306.



1. NORTH END OF CIST, SAMSON



2. SOUTHEAST CORNER OF CIST, SAMSON

3. NORTHEAST CORNER OF CIST, SAMSON

4. CHARLTON DOWN, BERKS. RECTANGULA
PLANK-LINING TO EARLY BRONZE AGE GRAV

facing

Notes and News

GROOVED STONE CISTS, SCOTLAND AND THE SCILLIES

The existence in Scotland of a group of stone-built burial cists in which the end-stones fitted into grooves cut in the lateral slabs has been known for some years, and a total of nine were recorded by Craw in 1930, all within a radius of one mile of Poltalloch in Argyll.[1] Outside this concentration the only example known seems to be that on Samson, one of the Scilly Islands, obscurely published in the nineteenth century and republished by Crawford in 1928.[2] No plan of the Samson cists has however been published, and that reproduced here was made by the writer in 1937, together with the photographs of details of the method of construction.

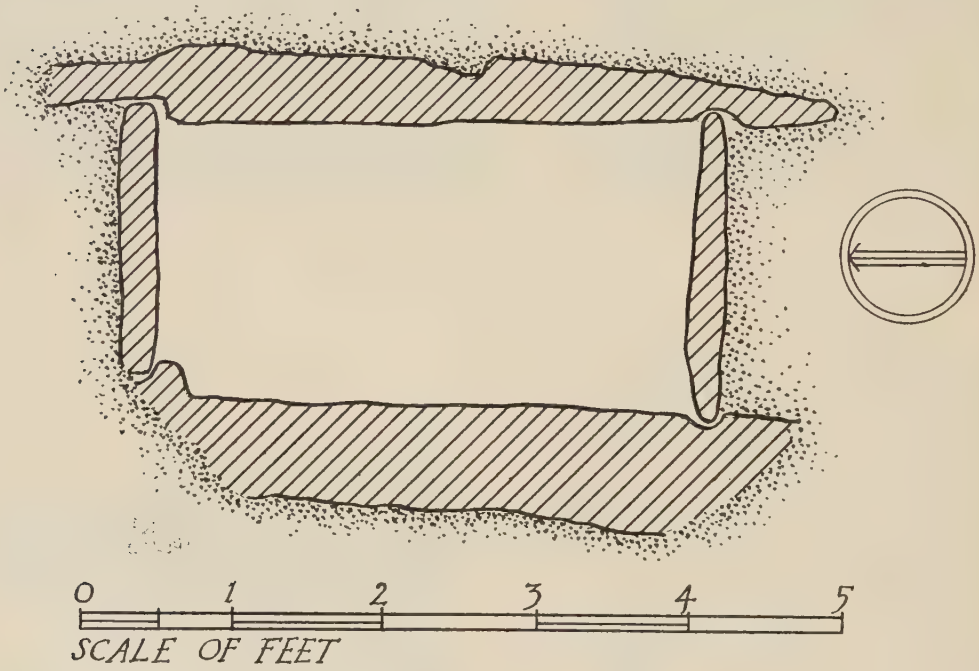
This curious variant on the simple stone cist raises several points of interest. In the first place, the laborious process of grinding out grooves to take the end slabs can only be the reflection of similar jointing in a more easily worked and sympathetic material, and be in fact a 'fossil' representative of a carpentry technique; the stone cists being in fact stone versions of wooden coffins, and the rarity of wooden objects of early prehistoric date in Britain renders them all the more important. The date of the cists in question is unfortunately not precisely fixed—no remains seem to have been found in the Scottish examples, while burnt bones and a flint flake were found in the Samson cist. But there seems good reason for assigning them to the Bronze Age, and probably to a relatively early phase, for in Scotland it seems difficult to dissociate the two grooved cists at Ri Cruin from the closely adjacent cist, the walls decorated with carved representations of flat metal axes and a stylized boat, which should certainly be Early Bronze Age in date.[3] And there is some evidence of wooden coffins made of planks in Early Bronze Age graves—in the north of England one may note Greenwell's barrow LIX at Cowlam, where the inhumation (probably Early Bronze Age) lay in a grave lined with slabs of wood, and his barrow XXV at Ganton, where a food-vessel interment lay on an elaborate

[1] *Proc. Soc. Ant. Scot.*, 1930, LXIV, 127–146.

[2] ANTIQUITY, 1928, II, 419, with refs.

[3] Craw, loc. cit.

wooden platform with a plank coffin or enclosure.[4] Something similar existed in Mortimer's barrow C59 at Aldro (also food-vessel), and a plank coffin certainly seems to have been present in his barrow 14 (Calais Wold) with a food-vessel, and barrow C55 (Garton Slack) with an undated inhumation.[5] In a barrow on Charlton Down, Berks, a large grave suitable for an inhumation contained at the bottom a rectangular enclosure defined by four planks, within which lay a



CIST ON SAMSON, ISLES OF SCILLY

cremation, a flat bronze dagger and an awl.[6] Wooden 'boxes' containing Early to Middle Bronze Age cremation burials in Wiltshire have been noted by Clay.[7]

The actual technique of jointing at right angles in wood by means of a groove and tongue is attested by the method of fitting the base into the sides of the wooden tub from Stunthey Fen, which contained a

[4] *British Barrows*, 225, 170.
[5] *Forty Years*, 69, 157, 219.
[6] *Trans. Newbury Field Club*, 1939, VIII, 109–116.
[7] *Wilts. Arch. Mag.*, 1929, XLIV, 103.

Late Bronze Age hoard, and as Clark pointed out in publishing the find, precisely similar tub-construction occurs at Glastonbury in the Iron Age.[8]

The geographical distribution of these grooved stone cists, with the West Scottish concentration and the solitary outlier in the Scillies, shows how intimately remote points on the Atlantic coasts might be connected by sea-borne traffic in the Early Bronze Age. The gallery-graves of the Scillies find close parallels in the region of Waterford Harbour, and the megalithic routes did not stop here. The present writer recently drew attention to the connexions between the Ri Cruin carvings mentioned above and those from the Early Bronze Age barrow near Badbury in Dorset.[9] If connexions between Wessex and Argyll were established at this time, it is hardly surprising that the Scillies, on the main line of the western seaways, should receive some ideas from the north.

STUART PIGGOTT.

EARLY ENGLISH SETTLEMENT, SOUTHWEST SCOTLAND

In the seventh century southwest Scotland came under Northumbrian control. This control involved more than a change of rulers or of over-lords. In certain areas there was Anglian settlement. This was sparse in comparison with the English colonization of the eastern Lowlands, but place-names, of which the significance may have been overlooked, point to a wider distribution of such settlement than has hitherto been generally recognized.

Bede refers to Cunningham in Ayrshire as a district of the Northumbrians in 696 (*Ecclesiastical History*, v, 12). As he gives the name—Drithelm—of an English *paterfamilias* of this district, it is evident that Anglian settlement had taken place. This suggests that 'Cuneningas', the older form of the name of Cunningham shown on the north sheet of the *Map of Britain in the Dark Ages* (Ordnance Survey, 1938), may contain that *-ingas* termination which marks some of the oldest Teutonic place-names in England. A possible extension of English settlement eastwards from Cunningham across the moors that divide Ayrshire from Clydesdale may be represented by Eaglesham (1158, Egilsham) in Renfrewshire. Ekwall says that as a class names with the suffix *-ham* are earlier than those with *-tun* (*Concise Oxford Dictionary of English Place-Names*, p. xiii): and in southeast Scotland no name of

[8] *Antiq. Journ.*, 1940, xx, 54.

[9] Ibid., 1939, xix, 291–99.

this class occurs west of a line drawn from Morham (East Lothian) by Kimmerghame (Berwickshire) to Midlem (*c.* 1120, Middelham—Roxburghshire). Thus all are in those areas which would first be occupied by English invaders.

English settlement in Cunningham implies previous control of Dumfriesshire by the Angles, for Nithsdale must have been their road to Ayrshire. The presence of Anglian Christianity is shown by the Northumbrian crosses at Ruthwell, Closeburn and Nith Bridge in Nithsdale and in Annandale at Hoddom and Wamphray. Place-names of the earliest Anglian types are absent, but it is possible that the word ' Dumfries ' (Dunfres) is itself evidence of Teutonic colonization. Skene believed that this name indicated early settlement by Frisians, representing ' the town of the Frisians, as Dumbarton is the town of the Britons '. Professor Watson has felt unable to accept this derivation. ' The difficulty here is that there is no independent ground for believing that the Frisians ever settled in Dumfries ; the first Teutonic invaders were the Angles in the seventh century, and they are always called " Saxons " both in Gaelic and in Welsh ' (*History of the Celtic Place-Names of Scotland*, pp. 421–2). It is, however, now possible to point to some evidence that may justify a modification of this verdict.

In the first place it has been established on archaeological grounds that the Humbrenses, whose northern settlements became known in the eighth century as ' Nordanhymbri ', were more closely connected with the inhabitants of the ' terpen ' or artificial mounds of the marshy shores of Frisia than with those of any other part of the continental coastline. It has further been shown that the *Historia Brittonum* of Nennius refers in two passages to the Northumbrians, in connexion with events of the seventh century, not simply as ' *Saxones* ' but as ' *Saxones ambronum* ' or ' *genus ambronum* ', the Ambrones being a real people whose homeland and habits of piracy link them with the Saxons and the Frisians, and whose name is preserved in the North Frisian island of Amrum. (J. N. L. Myres, ' The Teutonic Settlement of Northern England ', *History*, xx, 254, 259, 260). Thus, whether or not Frisians ever settled in Dumfriesshire, a considerable part of the Northumbrians, even if Angle by race, came to England from Frisia, and Welsh-speakers knew them by a tribal name which had Frisian connexions, if it was not actually the name of a Frisian folk. May not the Celtic neighbours of a fortified village of ' Ambrones ' on the Nith have called it ' the Frisians' fort '?

West of the Nith in Galloway, when Bede wrote, Whithorn

(Hwiterne) was ' in the province of the Bernicians ', and in 731 contained so many Christian Northumbrians that the see of Candida Casa had lately been constituted to give them a bishop of their own race and language (*Ecclesiastical History*, iii, 4; v, 23). English personal names are mentioned in connexion with miracles wrought at the tomb of St. Ninian in an eighth-century poem composed at Whithorn (ANTIQUITY, XIV, 289), and crosses found at Whithorn and St. Ninian's Cave are inscribed in Anglian runes. Penninghame (1576, Pennegem) in the north of the Machers peninsula may contain an early termination in *-ham*.

Upon Whithorn the Northumbrians can have kept a hold by sea more easily than by land through the naval power of which Ecgfrith's expedition to Ireland in 684 is an example. It would be strange if their attention had not been attracted to the Galloway estuaries that lie between the Machers and the Nith, and place-names do in fact seem to indicate that lesser English colonies on the Galloway rivers linked the two main centres of Northumbrian influence at Whithorn and in the county of Dumfries. The parish name of Twynholm (*c.* 1200, Twenham), which means ' between the waters ', that is, presumably, between the Water of Fleet and the Dee, suggests that English settlers may have reached this district by sailing up one or other of these tidal streams. It must have been Anglian influence which was responsible for the introduction east of the estuary of the Dee of the cult of St. Cuthbert and St. Oswald, shown by their commemoration respectively at Kirkcudbright and at Kirkcarswell, north of Dundrennan.

Farther east, north of Dalbeattie and near the head of tidal water on the Urr, are the castle, park, loch and moss of Edingham. It is suggested that Edingham should be identified with ' Edyngaheym ', which is included with Hodelme, Abermelc and Driuesdale in the account given in the *Registrum Vetus* of the bishopric of Glasgow of the ' Inquisitio ' ordered by Earl David (later King David I) as to the lands which of old had belonged to the church of Glasgow (Sir Archibald C. Lawrie, *Early Scottish Charters*, pp. 46, 303). Hoddom, Abermilk (St. Mungo) and Dryfesdale are adjoining parishes in Dumfriesshire. Edingham is in Kirkcudbrightshire, but came within the bishopric of Glasgow since it is situated east of the Urr Water, which in the Middle Ages was the boundary between the sees of Glasgow and Galloway.

If this identification be accepted, we have in Edingham one of those English place-names with the habitation suffix *-ingaham* which are

believed to have been formed not later than the eighth century. This would mean that Anglian settlers made their homes on the Urr Water at approximately the same time that other Northumbrians were establishing themselves in the Machers and in Dumfriesshire. The name of the parish of Buittle (1381, Butyll, that is, O.E. *botl*, a booth or building) shows that an independent settlement arose later on the edge of the hilly country that lies west of the Urr. W. R. KERMACK.

A MICROLITHIC INDUSTRY, GOLD COAST

For some time I have been sure from surface finds that there was a microlithic[1] quartz industry in the Gold Coast. Numbers of small quartz flakes were collected by Captain R. P. Wild from hill rubble at Obuasi, and from Nkraa camp, where, on ground cleared for a bungalow, they were associated with celts, stamped pottery and iron slag. (Some of these were given to the British Museum and the Museum of Archaeology and Ethnology at Cambridge). A large number came from a ' floor ' at Abomposu. Here several pounds weight were collected, and some were sent to Cambridge, but little notice was taken of them. A scraper, pronounced by Mr Braunholtz to have the appearance of belonging to a Wilton facies, was found on Government Hill, Tarkwa, and a typical ' lunate ' was found by the writer on Monkey Hill, Obuasi. I recently found an area at Ntronang where the ground was littered with small quartz flakes, and in this case there were also definite microlithic forms. I have also been sure that the celts[2] of the Gold Coast only represented part of the lithic industry of their makers, and I have also wondered much about the date of the biconically-pierced quartz discs[3] which are such a puzzling feature of the antiquities of this country.

An excavation on behalf of the Achimota College Anthropology Museum in ' Bosumpra boom '—the cave once the home of the Bosumpra spirit, at Abetifi, Kwahu—has recently thrown some light on these problems. A trench from the back of the cave to the outer lip, and continued down the slope outside, revealed deposits six feet

[1] cf. Microliths from Wana, Nigeria, given to the British Museum by I. D. Hepburn in 1931, and from Dakar, in the L'Institut de l'Afrique Noire Occidentale at Dakar, collected by Theodore Monod.

[2] R. P. Wild, ' Stone Artifacts of the Gold Coast and Ashanti ', *Gold Coast Review*, 1927, III, 157–194, and ' Nyame Akuma or God Axes ', ibid., 1931, V, 150–55. Balfour, ' A Collection of Stone Implements from Ejura, Ashanti ', *Journ. African Society*, 1912.

[3] H. S. Newlands, ' An Archaeological Puzzle from West Africa ', *Journ. Royal African Society*, XIX, 40–43.

thick, the first layer of which contained modern and comparatively recent pottery, sandstone 'rubbers' and a piece of an iron-smelting tuyère. Below this occurred a most prolific microlithic industry, mostly in milk-white quartz obtained from gravel near by, but a few artifacts were made of chert from further away. This industry includes petit tranchet forms, lunates and backed blades, burins, as well as cores, rough scrapers and points. A small number of celts occurred, mostly of type IV (short and stubby, elliptical cross-section), although there was one fairly large example of type V (flat, broad, rounded cutting edge, rounded butt, slightly curving sides); these were made of greenstone imported from at least ten miles away. There was also a large number of greenstone fragments, both the by-products of manufacture and of use. Three examples seem to be rough-outs for grinding; others show some ground surface. No grooved grinding stones were found, such as have occurred elsewhere, and although I have searched the surrounding rock-faces fairly thoroughly, have not been able to discover any grinding grooves; nor were there any on the rocks uncovered by the excavation. There was however a number of small quartz pebbles with one or two faces ground to a flat surface by prolonged use. These two facts appear to suggest that the grinding was done by rubbing a quartz pebble on the surface of the rough-out, not by rubbing the rough-out against a rock.

There was also a type of pottery, which extended into the lowest level, but was not present in the two upper levels, decorated by rows of pointed oval, or rectangular, depressions. Finally, there were two biconically-pierced quartz discs at depths between 3 ft. and 5 ft.

Excavation was cut short by the exigencies of war, but it is hoped to do further work, and to publish in full the results already obtained. It was thought that this preliminary note might be of interest, as such an association as that outlined above is believed to be the first of its kind for British West Africa, and probably for the whole of West Africa.

C. T. SHAW.

CURRENCY BARS

Sir Cyril Fox writes:—My friend, Mr C. F. C. Hawkes, F.S.A., points out that there is an omission from the list and distribution map in my note on Currency Bars (ANTIQUITY, 1940, pp. 427–433), which I am now allowed to record.

In 1919 a hoard of 'about 13 bars' was found on Worthy Down, Winchester, and published by R. W. Hooley, F.G.S., (*Antiquaries*

Journal, 1921, I, pp. 321 ff.). The site is about 73 miles from Cinderford and the column on my graph (p. 431) numbered 13–17 should be lengthened by $\frac{1}{5}$ inch. The addition does not necessitate, I think, any revision of the argument presented.

SAINT CUTHBERT'S DWELLING ON FARNE

The *Anonymous Life of Saint Cuthbert*, recently edited[1] by Mr Bertram Colgrave, describes[2] his dwelling on the island of Farne in the following terms, here translated : ' And so after some years, desiring a solitary life, he sought the island which they call Farne, surrounded on all sides by water in mid-sea : where hitherto hardly anyone had been able to stay alone owing to various demon phantoms. These he routed in virtue of a mind which knew no fear, excavating almost a cubit deep into the earth through very hard and stony rock and preparing the area of the site. He also erected another amazing cubit above this, built with a mixture of earth and stones of a size unbelievable except to those who knew that so much of God's power was in him. And he made little houses there, from which he could see nothing but heaven above '. *Bede's Life of St. Cuthbert* adds[3] that there were two of these little houses, one for an oratory and the other for a dwelling, while the enclosure was almost round, about 20 yards across.

It has long been recognized that the structure which St. Cuthbert built was something like a cashel. But there are closer parallels, perhaps more interesting in view of the early life of the saint. In the Cheviot and the Lammermuirs, where he had tended sheep as a lad, the type of structure which he was thus later to use as a hermitage was so common that it would have excited no remark. It is, in fact, the simplest form of homestead to be found there, and consists of a small ovoid enclosure surrounded by a composite dry wall faced with large orthostatic boulders containing a core of earth and small stones. There is one gateway, leading into a little court, excavated deep enough to drain the area and perhaps to contain some water, while beyond lie one or two circular huts, built in the same manner as the enclosing wall but on a smaller scale.

This interesting connexion between literature and archaeology has bearings in both spheres. The archaeologist will welcome a

[1] *Two Lives of St. Cuthbert*, Cambridge University Press, 1940. Reviewed ANTIQUITY, September 1940, p. 343.

[2] *Anonymous Life*, III, 1.

[3] *Bede's Life of Saint Cuthbert*, 17.

description of a type of dwelling which receives a notice nowhere else in literature, while the student of St. Cuthbert's life may find material for reflection in the thought that Cuthbert, when in search of further religious experience, reverted to the conditions under which he must often have lived as a shepherd-lad. It was in those days[4] that he had seen his first vision, of angels bearing St. Aidan's soul to paradise.

IAN A. RICHMOND.

MAJOR G. ALLEN

The premature death of Major George Allen, F.S.A., is an irreparable loss to British archaeology. He was the first civilian pilot to take up archaeological air-photography in this or any other country, and he achieved brilliant success. He realized that the technique had to be studied and developed; he made his own camera and developed the technique to a point that has been reached nowhere else. Every year he took several hundred photographs of sites, the majority of which he discovered himself. Not only therefore did he create the method, but he became, in the process, an archaeologist. By this very practical application he actually discovered many hundreds of new sites (mostly crop-sites), some of them of the first importance. He was always ready to photograph sites that other people were excavating—Maiden Castle for instance—and his beautiful photographs became a regular feature of excavation reports, books on British archaeology, and of this journal. All this he did for the love of the thing, entirely at his own cost. His generosity and self-effacement were conspicuous and in the very best tradition of British archaeology, which from the days of the great pioneers (Aubrey, Stukeley, Horsley, Colt Hoare, Evans, Pitt Rivers) down to the brilliant and equally heroic inter-war period, has always been the strongest in the amateur line. He was an outstanding example of the virtues of individual enterprise. Over and above this he was a charming companion, and one whose death is felt as a grievous personal loss by the present writer and by all his friends. It is a consolation to think that his work will live after him in his large collection of negatives (bequeathed to the Ashmolean Museum, Oxford), which will provide both inspiration and rich veins of ore for the archaeologist of the new world that must come some day. O.G.S.C.

[4] *Anonymous Life*, I, 5. It may be remarked that the imagery of this vision, if considered as a bright spirit in the hands of the spirit-multitude, is thoroughly Celtic, and no doubt reflects the environment of Cuthbert's early youth, translated into Christian terms. So also is the idea that islands were the abode of demons (see ANTIQUITY, XIV, 194).

Reviews

UGARITICA : ÉTUDES RELATIVES AUX DÉCOUVERTES DE RAS SHAMRA (*Mission de Ras Shamra, tome* III). *By* CLAUDE F. A. SCHAEFFER. *Paris : Geuthner*, 1939. *pp.* 325 *and* 32 *plates.* 200 *francs.*

The ruins of the City-State of Ugarit, the modern Ras Shamra on the North Syrian coast just opposite Cyprus, have already yielded a sequence of stratified cultures going back to the fifth millennium B.C., tablets written in the oldest known alphabetic script, archaeological links between the Aegean, Egypt, Mesopotamia and Anatolia, and texts of unique importance for the history of Semitic religions. A series of nine excavation reports in *Syria* has kept the scientific world informed of the progress of discovery, and a certain number of the more exciting texts has been published in that journal or elsewhere ; so that, including commentaries and reviews, the bibliography of Ras Shamra, attached to the present volume, already contains over five hundred entries ! *Ugaritica* is to contain a series of studies which will form the definitive publication of the site when completed. The first volume of these before us is illustrated by 123 line drawings and half-tones (better reproduced than is usual in French publications) and 32 first class photogravures. The first chapter summarizes the history of the city as known down to 1938 in words almost identical with those of the author's Schweich Lectures, published by the British Academy in 1939.

The lowest level of habitation, known only from test pits, revealed a preceramic neolithic, perhaps comparable to that of Jericho or Cyprus. Immediately above it comes the classical East Mediterranean neolithic characterized by polished black and red ferruginous wares such as occur in the lowest levels of other tells in North Syria, like Sakje-geuzi, and at Mersin, and at least technically related to the neolithic of Knossos in Crete. Then in level IV (counting from the top) the monochrome wares give place to the painted Tell Halaf pottery, now familiar all across the steppe–piedmont belt of the Fertile Crescent from Assyria east of the Tigris to Cilicia. The technical affinities of its glaze painting prompt some general remarks on the debt of Early Minoan Crete to Asia. In level III as in Assyria, Tell Halaf ware is replaced by that named after the site of Al 'Ubaid near Ur in Sumer, but some of the latest fragments suggest comparison with the more recent Jemdet Nasr style of Babylonia. After these settlements, which on Mesopotamian chronology should go back to the fourth millennium, there supervene strata marked by a revival of the native monochrome tradition till we reach level II contemporary with the Egyptian Middle Kingdom and Hammurabi's dynasty at Babylon.

This is well dated by Egyptian statues and scarabs revealing close and friendly contact with the Nile valley. But in it appear ingot torques and pins with swollen perforated necks that Schaeffer attributes to Europeans from the Danube valley. Then the troubles caused by the Hyksôs are reflected at Ras Shamra by the mutilation of the Egyptian monuments. Thereafter Ugarit was incorporated in the Egyptian New Empire and enjoyed its golden age. But in the 14th century an earthquake, mentioned in the Tell el-Amarna letters and clearly recognizable in the ruins, interrupted this era of prosperity. Subsequently Ugarit joined the Hittite confederacy, retaining its independence.

Chapter II deals with the Aegean relations of Ugarit. Part of a polychrome M.M.IIa cup, imported from Crete, and imitations of Middle Minoan vases turned up in tombs at Ras Shamra, dated by Egyptian imports to the 18th century B.C. This observation induces the excavator to re-examine the dating of the Middle Minoan vases found in Egypt with the result that he, like Åberg, favours some reduction of their dates as compared with those generally accepted in Britain. The imitation of Minoan vases suggests an actual settlement of Cretan merchants and craftsmen at Ugarit already in the 18th–17th centuries—an inference supported by the development of tombs with a short stepped *dromos* (entrance passage) under houses of the period. This infiltration would have prepared the way for a veritable colonisation towards 1400 B.C. The colonists built for themselves vaulted family tombs recalling the famous tholos tombs of Greece. But at Ugarit they were built under the houses of the living; the chambers are rectangular, not round; the vault over some chambers and the arch over some doors are completed by a T-shaped keystone, and niches or even windows have been let into the chamber walls. These and other features reveal a striking divergence from the practice of the Greek mainland; the nearest analogy to the Ugarit vaults is the Royal Tomb of Isopata in Crete. Aegean influence is also seen in the combination of masonry and timber in wall construction, to say nothing of numerous Mycenaean cult-objects and masses of imported pottery. It really looks as if Minoan or Mycenaean colonists came to form the richest element in the city's cosmopolitan population though the written language remained Semitic.

A remarkable iron battle-axe is studied in chapter III. It is reliably dated about 1400 B.C. and is in any case older than Tutankhamen's famous dagger, so that it is the oldest surviving object of terrestrial iron (since the iron blade of the early Sumerian dagger from Khafaje had been completely disintegrated by rust). A shaft-hole socket of copper had been cast onto the blade by the *çire perdue* process. The butt takes the form of a boar, while two lions' heads seem to be spitting the iron blade from their mouths, the whole being decorated by a sort of damascening in gold. On stylistic grounds the weapon, though

possibly mounted at Ugarit, is regarded as Hurrian or Mitannian—a Hurrian element was prominent in the earlier levels at Ras Shamra. Hence Schaeffer, citing also references to iron in the letters of Tushratta, king of Mitanni, to Amenhotep III, argues that the earliest economical iron-working developed on Mitannian territory and only passed under the control of the Hittites after these had conquered Mitanni.

The last chapter describes two archaic looking statuettes—a seated goddess and a standing god—of copper, which are dated between 1900 and 1600 B.C. The author does his best for the pair, but they hardly seem beautiful from their photographs. The style is considered to be Hurrian. A comparison with Sardinian and Iberian bronzes occurs to one at once, but doubtless only owing to the crudity of the representation. V. GORDON CHILDE.

THE GREEKS IN BACTRIA AND INDIA. *By* W. W. TARN. *Cambridge University Press*, 1938. *pp.* XXIII, 539. 30*s.*

The history of Greek influence in the Eastern world is a subject comparatively little studied ; school text-books mostly end with the death of Alexander, and though some knowledge of the Diadochi is expected of University students, it is rare for any except specialists in Ancient History to go beyond the third century B.C. It is therefore something of a surprise to the ordinary reader to learn that Greek influence in India persisted almost to the beginning of the Christian era.

Dr Tarn's aim is to elucidate the rise, the decline and the final extinction of Greek power in the Far East, and to this undertaking he has devoted all the resources of his wide knowledge acquired in many years of exhaustive study. It is a difficult task, especially in the later stages, for the works of the first-hand authorities are almost entirely lost, and the later writers who made use of them are often untrustworthy. At a certain point Greek evidence fails completely, and the historian must fall back on the scanty information to be gathered from Indian and even Chinese sources ; while for the final phase there is no evidence at all except the existence of numerous coins struck by a series of otherwise unknown kings of Greek origin.

Dr Tarn assumes in his readers at least a general knowledge of Hellenistic history, and, as a necessary preliminary for further study, he gives in the first part of the present book an introductory sketch of the Seleucid kingdom (Ch. I) and an account of the Greek literature of the Middle East and the social relations between Greeks and Orientals (Ch. II). A knowledge of this background will, he hopes ' make it easier to see the connexions between the story of the Farther East and that of the Seleucids '.

Whereas Alexander had looked further than mere conquest and domination,

and aimed at the fusion of Greece and Persia, the Seleucids had different ideals; they favoured the Greeks unduly, and fostered the Greek πόλις instead of trying to unite East and West. The story of Bactria as an independent state separated from Seleucid influence begins with Diodotus I (who was little more than a satrap of Antiochus II) and his son Diodotus II. The latter, *c.* 228 B.C., took the royal title and formed an alliance with the king of Parthia, but the most important names in the early history of the kingdom are those of Euthydemus and his son Demetrius. Euthydemus was a son of Diodotus I by a Seleucid princess, his second wife. With true Macedonian unscrupulousness he killed his half-brother, Diodotus II, and assumed the throne. We now come to a striking example of Dr Tarn's interpretation of the evidence of coins. The portrait of a certain Antimachus, to be mentioned later, shows a humorous smile of which the only other example is on a portrait coin of Euthydemus. This is a strong argument in favour of relationship, and what we know of the dates fits in with the theory that Antimachus was a son of Euthydemus and a younger brother of Demetrius. A further argument, partly based on coins, gives us the names of the four sons of Demetrius.

The detailed chronology of this period is impossible; Euthydemus, after a hard fight, came to honourable terms with Antiochus III and was, in all probability, nominally a vassal-king, at any rate for a time. He seems to have originated a new state-form, under which a reigning monarch could appoint as his deputy a sub-king. His son Antimachus, who ruled thus as a sub-king, first under his father and then under his brother Demetrius, issued a coinage of his own with the royal title, and was not deterred by false modesty from calling himself God. Demetrius succeeded to his father's ambitions for extending the kingdom. Darius and Alexander had both conquered India, and the latter, though he did not hold it for long, had commemorated his name by many 'cities' founded in the country. Demetrius consciously imitated his supposed ancestor, for by a fictitious pedigree (*see* appendix) the Seleucids, with whom he claimed kinship, traced their descent from Alexander; he even adopted the title ἀνίκητος (invincible) which was conferred on Alexander by the Pythia, but never used by any other Greek king hitherto. For a short time he held an enormous empire; he himself conquered Sind and went down the Indus to the sea; his able lieutenant Menander reached Pataliputra, as is proved both on Greek and Indian authority; Apollodotus, his second general, penetrated Rajputana. His policy was to form a Graeco-Indian empire based on the partnership of the two races, and was carried on, after Demetrius' death by his able General Menander, the story of whose long conflict with Eucratidas, acting for Antiochus Epiphanes, remains obscure, the chronological evidence being supplied partly from coins. After the death of Eucratidas, Menander

retained the kingship of India, while Bactria, ruled for a time by a son of Eucratidas, succumbed to a nomad invasion. Of the death of Eucratidas, Dr Tarn has a new account; there are two ancient stories, one that he was killed by the Parthians, the other that he was murdered by his son. Dr Tarn rejects both of these, but believes that the latter contains the truth, disguised by a clerical error. A name has dropped out after 'son', and Eucratidas was killed not by his own son but a son of somebody else, probably Demetrius.

Here, as in the case of many events of this period conjecture plays a large part, and after the death of Menander literary evidence fails altogether. Thus the last period is the most difficult of all to reconstruct. We have the names of thirty-six kings and one queen, but there is no means of establishing their relationship except by the elusive evidence of coins.

In dealing with these late dynasties Dr Tarn maintains his opinion that the monograms on their coins are not the marks of mint-cities, as is generally believed, but represent the names of mint-masters, according to Seleucid custom, or possibly city-magistrates. Either interpretation is likely in the present case to lead to contradictions and difficulties, and, failing further archaeological evidence, it is unlikely that the history of this period can be satisfactorily established.

To conclude, our author has made a discriminating use of all possible authorities—Greek, Indian, and even Chinese literary sources, in addition to coinage. The difficulties in the way of a systematic archaeological survey have, for political and other reasons, so far been insurmountable. The result, though many details must still be subjects of controversy, is a consistent narrative of a complicated period of history, a contribution of great value to our knowledge of the Hellenistic East. It would be easier to follow the sequence if we were provided with a chronological table of the reigns and the dates of the principal events. A further help would be the insertion in the maps of lines to show the boundaries of the Bactrian empire at various stages. The general index, which is full and accurate, is helpful in these matters; but it would be useful to be able to see the results at a glance. J. F. Dobson.

FAHREN UND REITEN IN ALTEUROPA UND IM ALTEN ORIENT. *By* Joseph Wiesner. (*Der Alte Orient*, band 38, heft 2–4). *Leipzig*, 1939. *pp.* 92 *and* 8 *plates.* 5.25 *marks.*

Five years ago Miss Hermes published in *Anthropos* a series of important articles on the war-chariot—and cavalry as a contribution to the problem of Indo-European origins. She brilliantly showed how the swift horse-drawn car could be used as an instrument of domination and of linguistic diffusion, and at the same time brought out admirably the high technical skill presupposed in the

construction of the engine. Starting from the high antiquity of the war-chariot in Mesopotamia as revealed by the discoveries at Ur and Kish, she sought to trace the spread of the new weapon from Asia to Europe, and subsequently to establish a similar spread of cavalry, and thus to demonstrate the Asiatic origin of the Indo-Europeans whose intimate connexion with the horse and horse-drawn car remains one of the most reliable deductions of linguistic palaeontology.

Wiesner's popular book seems really to be a reply to her articles, though her arguments are never expressly contraverted and many of her conclusions are indeed accepted. But the author lays great stress on the contrast between the west Eurasian tarpan stock from which the Indo-European steeds of Hither Asia and Greece would be descended, and the *Equus Przewalski* breed which furnished the earliest Chinese horses. He insists too on the frequence of horse-remains in the European Stone Age, often in contexts which, like the British long barrows, would seem to exclude connexion with Indo-Europeans. Hence not all horse-using peoples need be Indo-Europeans nor influenced thereby. The chariotry of the early Sumerians was neither a sign of Indo-European influence nor yet a Mesopotamian invention ; it was borrowed by the Sumerians from unidentified mountaineers to the north from whom also the horse may have reached the Indus civilization. Conversely the first expansion of the Indo-Europeans,—battle-axe folk from northern Europe—was not in chariots though horses may have drawn their wagons. It would only be in the last stage of this expansion when the Aryans (Indo-Iranians) were breaking away from the rest that the light chariot was adopted by some of our linguistic ancestors. Direct connexion between the heavy chariots used by spearmen in the third millennium, and the light cars of the second millennium bowmen is denied ; but the reader may, if he wish, infer that the Indo-Europeans and the Shangs of China borrowed the improved device from the same source as the Sumerians a thousand years earlier.

In any case ' the Indo-European chariot-fighting tribes are not sprung from nomad riders, but from a culture in which beasts drew wagon and plough—a peasant culture ' (in harmony with official German ideology) ; ' for all their wide roaming they exhibited a sedentary character which enabled them to play a constructive role in history '. It was from the East European plain that the new war engine was brought to Scandinavia (where it is represented on the Middle Bronze Age cist at Kivik, Scania) to Mycenaean Greece, and, with the Aryan rulers of Mitanni, to Hither Asia. From the latter (not from the Hyksôs) it was adopted by the Egyptians, Phoenicians, Babylonians and Assyrians, presumably as the horse was taken over by the Plains Indians from the Spanish Conquistadores. In Central Europe the war-chariot would have spread more

slowly ; Wiesner cannot decide whether the Celts received their introduction to it from the north or from the east through the Thracians. Miss Hermes had suggested that the La Tène chariots are inspired by Etruscan models, but this idea is not even considered.

Cavalry riding together with cremation reflected to Miss Hermes the second wave of Indo-European expansion from Asia. Our author does admit that the idea reached our Continent from Asia, but not as a result of an invasion by riders. (Gallus and Horvath, *Un Peuple cavalier préscythique en Hongrie*, have recently argued from a comparison between Hungarian, Caucasian and Siberian bits for a spread of mounted knights eastward from the middle Danube plain). ' It must be regarded as certainly established that cremation is a rite unsuited to horsemen who always lay stress on conservation of the body ' (no evidence cited). On the other hand trousers and slashing swords are proper to riders and mark peoples who have given up chariot-riding for horse-back fighting.

The detailed argumentation of the above theses, supported by small but good photographs of the most relevant representations and of bits, is moderate and reasonable. No illegitimate use is made of the allegedly neolithic bridle-cheek-piece from Halberstadt, nor of other finds of dubious antiquity. The famous Egyptian chariot preserved at Florence is not hailed as ' Nordic ' because birch-bast was used in its construction. We may be surprised to learn that ' the most imposing monument of the northern chariot nobility is the Cursus (*Rennbahn*) of Stonehenge. But its dating to the second millennium is not yet certain '. In any case the author's insistence on the careful training required for war-horses that were to draw chariots, and the practical utility of racing to that end, as well as on the connexion with funerary cult, is useful. But the whole thesis fits official dogmas so neatly and refutes Miss Hermes' heresies so plausibly that it seems too good to be true. Incidentally the accepted doctrine of the Asiatic character of the composite bow has to be jettisoned since that is the weapon of the earliest Indo-European charioteers both in Greece and in Hither Asia.

V. Gordon Childe.

ZUR URGESCHICHTE DER KELTEN UND ILLYRIER. *By* Julius Pokorny. *Halle* (*Saale*), 1938, *Max Niemeyer Verlag. Price* (*abroad*) 9 *marks.*

There are two aspects to this book. First, a sketch of the cultural history of Central and Western Europe on an archaeological basis from Neolithic times to the La Tène period ; and second, an attempt to equate the various cultures as far as possible with linguistic evidence. The primary interest throughout centres on the Urnfield people. For the former, Pokorny has taken the trouble

to acquaint himself fully with modern archaeological research ; more than can be said for most Celticists who have dealt with questions of cultures and races. For the rest, Pokorny is a man with a strongly developed scientific instinct for imposing the order of theory on the chaos of fact ; a philologist and Celticist of great repute, he is well-known among his colleagues for the boldness of his hypotheses. Here therefore one must caution those archaeologists who may be unfamiliar with philological methods, and may be inclined to take Pokorny's etymologies on trust, since his presentation makes them seem simpler and more authoritative than they are.

Pokorny has been struck by the importance in European prehistory of the wide expansion of the Urnfield peoples from their Lausitz homelands. It is clear that they must have been an Indo-European people, and yet neither Celtic nor Italic nor Germanic nor Balto-Slavic, to use linguistic terms. What was their language, how can it be reconstructed, and what influence did it have on neighbouring languages and on the toponymy of Europe ? Pokorny's answer to the first question is that it was Illyrian, on the ground that the historical Illyrians were the most direct descendants of the Urnfield people speaking an Indo-European language other than those excluded. The Illyrian language he believes can be recovered as follows : first, from such meagre remaining words and names of the Illyrian, Venetic, and allied Balkan peoples as are found in Classical sources, as well as from modern Albanian, a small proportion of whose vocabulary is probably descended from the Illyrian ; and second, from place-names in any part of the wide Urnfield expansion areas which are Indo-European but not Celtic, Italic, Germanic, or Balto-Slavic. Here again a warning is needed. Identification of languages with cultures in pre- and proto-historic times is rarely simple and is often highly dangerous. In some cases there is enough converging evidence to give certainty ; thus there is no possible doubt that the La Tène peoples of Gaul and Britain spoke Celtic. But when it comes to reconstructing the phonetics and morphology of an almost unknown language chiefly from place-names, many of them modern, and equating it with a little-known culture, it is another matter. The frequent practice of drawing conclusions about a whole culture or people from one or two doubtful names (as a random example, the Picts), is a very risky one. Pokorny himself points out honestly some of the difficulties of his methods. He rightly states that the absence of some word in the modern Celtic languages is no proof that it is non-Celtic ; but he then acts as if it were. He allows that a name found in various parts of the Urnfield area need not necessarily be Illyrian, but may be due to some older common substrate ; he rarely considers this however, and would rather invent more or less unconvincing Indo-European etymologies than admit that a given name may be non-Indo-European.

Pokorny gives what sketch he can of Illyrian phonetics. If he is right, it is very like Celtic in many ways, but there are certain points of difference. The most important are : preservation of Indo-European *p*, lost in Celtic, and *q*, changed to *p* in all but the Goidelic branch of Celtic ; and of *p* . . . *q* (as in *penque*), assimilated to *q* . . . *q* in Celtic and Italic (Latin *quinque*) ; Indo-European *ei* becomes *ī* in Illyrian, and *gu* becomes *g*, but in Celtic respectively *ē* and *b*. In some instances one can definitely say on these lines that a word is not Celtic and may be ' Illyrian ' ; for example *Porcobera*, ' Salmon bearing ' (river name in Liguria), where Celtic would be **Orcobera*. But quite often Pokorny's reason for denying a name to Celtic and giving it to Illyrian is not phonetic, and is then much less satisfactory. Thus it is an important part of his theories that the Indo-European element in the ' Ligurian ' area of southwest France was Illyrian, and therefore that any Indo-European names there must be Illyrian, not Ligurian ; nor yet Celtic, apparently, no matter how Celtic they look. This of course ignores the fact that by later La Tène times Liguria, not to mention many other parts of Europe formerly more fully occupied by the Urnfield peoples, must have been largely Celtic-speaking. Why should a name in the former Urnfield area, later overrun by La Tène Celts or overlaid by their culture, be divorced from the known Celtic and called the unknown Illyrian, if it can perfectly well be Celtic ? For example, the name *Argentios* in the department of Var is called Ligurian, i.e. Illyrian (' Latinized ' from *Argantios*) ; but the burden of proof is on Pokorny to show why it is not Latinized Gaulish, a much more natural assumption, as phonetically it can just as well be. Numerous other instances could be quoted. Apropos of Teutomelius, king of the south French Saluvii, he speaks of the ' Illyrian ' names *Teuta*, *Teutos*, *Teuticos*. This seems wilful ; what is better authenticated, with descendants in all the modern branches, than the Celtic (and Italic) base **teut-*, ' people, nation ' ? To speak of the first part of *Bormitomagus* (Worms) as a ' good Illyrian name ', without noting that the second element at least is a well-known Celtic word, is almost equally perverse.

The above criticisms are by way of a caution to those who are not versed in philology ; there is much more hypothesis present than might be suspected. But this is not to minimize the value of Pokorny's work. There is no doubt he ' has something '. The Urnfield people must have spoken a language, doubtless Indo-European, and it is quite legitimate to ask what it was, and what influence it had on better-known languages and European place-names in its widespread distribution. When all is said, there is a residue in Pokorny's examples which does seem to deserve serious attention. At present his is a theory to be borne in mind, rather than an established fact to be accepted.

There is a great deal of matter in this book, and a review can only touch certain sides of it. The questions of ' Illyrian ' nomenclature in Spain, France, Germany, etc. are an important section. English archaeologists will be particularly interested in the British aspects. Pokorny holds that the Late Bronze Age influx was not due to Goidelic-speaking Celts, as has frequently been thought, but to Illyrians ; which however involves believing that the Urnfield population element among the immigrants was far more important than that of the Tumulus people, which is doubtful (*cf.* Mahr., *Proc. Prehistoric Society*, 1937, pp. 389 ff., particularly p. 397). This view opens the way to much theorizing about Illyrian place-names in the British Isles, interesting and ingenious but not always too convincing. The name *Albion* is declared to be Illyrian or even pre-Illyrian, partly on the ground that it is not found in Brythonic ; Pokorny is unaware apparently of the Welsh *elfydd* ' world, land ', from British **albio-* (see *Bull. Board of Celtic Studies*, VI, 134). According to him, the bringers of the Iron Age A culture were Q-Celtic Goidels, not P-Celts as is usually supposed. This involves separating *Pretanike* from the Celtic stem **qrit-*, and some doubtful etymologizing to make an Illyrian word of it. The first P-Celts in Britain would therefore be the Iron Age B people. Illyrians are unearthed of course in Ireland as well, and here the evidence is even less certain ; some timely strictures on some of Macalister's more unfortunate Germanic etymologies are to the point, however. On the supposed early Brythonic element in Irish emphasized by O'Rahilly, Pokorny attributes this to the Iron Age B peoples, evidently the *last* important Celtic infiltration into Ireland. The attribution is clearly correct, unless indeed it is all a matter of late Welsh borrowing, as many still think. The fact that the Gaelic overlords of early historical Ireland seem a fairly new thing, having subjected populations who were at least in part Brythonic or non-Celtic, was thought by O'Rahilly to mean that the Brythonic Celts (including *Belgae*) came to Ireland *before* the Goidels, an archaeological paradox of course. Pokorny hints at, but does not seem to develop, a much more simple explanation, namely that the new Gaelic ruling peoples and dynasties of the Christian era represent merely an upsurge of an older Celtic population subduing the remnants of the light Iron Age B infiltration. So bemused are we all by the old idea that every new governing people must necessarily represent a new invasion of foreign conquerors, that no one seems to have thought of this before.

In spite of doubtful etymologies, one must confess that in dealing with Britain, as before, Pokorny has something. There *are* pre-Saxon place-names in Britain which cannot easily be explained as Celtic. Such are *Mons Graupius*, *Rutupiae*, *Corstopitum*, *Venta*, to name only these ; and one must consider

whether they may not be due to some non-Celtic constituent in the Late Bronze Age and First Iron Age immigrants, and whether that may not consist of Urnfield elements unassimilated to the proto-Celtic Tumulus people, especially if convincing parallels in the Urnfield area can be demonstrated. Pokorny's stimulating theory would have been more impressive if he could have restrained himself from overdoing the case, and had limited himself to a nucleus of really persuasive etymologies. KENNETH JACKSON.

ZUR URGESCHICHTE DER KELTEN UND ILLYRIER. *By* JULIUS POKORNY (reprinted from *Zeitschrift für keltische Philologie*, XX (1936), *pp.* 315–352, 489–522 *and* XXI (1938), 55–166, with annex, *Die Urnenfelderkultur und ihre Bedeutung für die europäische Geschichte, by* R. PITTIONI (ibid. *pp.* 167–204).

Though hardly a scrap of literature survives, something, it is claimed, can be reconstituted of the Illyrian language from place-names (those like Hallstatt and Halle containing the Illyrian word for salt are the best known). The Illyrians who spoke this language seem to classical scholars barbarian tribes scattered on the margins of Ancient History. But the distribution of the place-names, if these be correctly attributed to them, would imply that the Illyrians had once been as domineering and ubiquitous as the Celts of the third and second centuries B.C. Kossinna long ago suggested that Illyrians were authors of the Lausitz culture. To rescue the latter from Slavonic claimants the thesis has been enthusiastically espoused by Austrian and German prehistorians and patriotically developed since 1920. It is now universally asserted in the Third Reich that not only the Lausitz culture itself, but also the urnfield cultures of Bohemia, Austria and western Germany, in which Lausitz influence can be detected, are monuments of the Illyrians. The former Professor of Celtic in Berlin here illustrates the thesis by juxtaposing a map of Illyrian place-names in Central Europe to the map of Urnfield cultures published in my *Danube in Prehistory*. The distributions agree quite well.

But Pokorny is not unaware that archaeologists have recognized at least the influence of urnfield cultures also in the Celtic west. So, encouraged by the name of the Veneti in Brittany, he asks whether there be not traces of Illyrians in West European toponymy too. Here in the west Pokorny thinks himself entitled to claim as Illyrian all linguistic monuments on Celtic territory that, while unambiguously Indo-European, cannot be explained as Celtic, and that recur either on original Illyrian soil from Poland through the Sudeten lands, Hungary and the Balkans to Albania, or in later Illyrian colonial domains in Austria, Switzerland, Italy and Greece, as also in the kindred Thracian province. Moreover, he adds, ' in view of the close linguistic relations between Illyrian

and Balto-Slavonic, I have treated Celtic agreements with Balto-Slavonic as evidence of an Illyrian origin '. Copious traces of Illyrians are thus detected.

The reviewer is not competent to pronounce either on the propriety of the methods or on the validity of the individual philological arguments, but thinks it worth while to summarize for English readers the conclusions of this distinguished foreign scholar in so far as they affect British prehistory. For Pokorny finds a number of Illyrian names in the British Isles—principally rivers, including the Severn, Tay, Thames and Farar, but also tribal appellations, the Lugi in Sutherland, the Epidii in Kintyre and our old friends the Picts as well as the oldest recorded name of Britain, Pretanikai Nesoi. Such must, he suggests, have been introduced by Urnfield invaders—in the first place the authors of our Deverel-Rimbury cultures, but also by the Late Bronze Age invaders symbolized by leaf-shaped swords and the other novelties in metal-work to which Mr O. G. S. Crawford first drew attention. Even in Ireland the repercussions of this invasion are reflected in such names as Shannon.

The identification of the Late Bronze Age invaders as Illyrians, obliges Pokorny to propose a fresh solution to the problem of the Goidels, but this he can find only after examining the linguistic and archaeological data from the Iberian Peninsula. There too he finds Illyrian names. Their introduction our author attributes to those urnfield invaders from the Rhone whom Bosch-Gimpera and Kraft (ANTIQUITY, 1929, III, 36) took for Celts. Two subsequent layers of invaders can, however, be recognized and accepted as Celtic by Pokorny. The latest (La Tène) layer would of course be Brythonic, but that represented by the late Hallstatt cremations with horse-shoe swords and Jogassian-looking brooches is claimed to be connected with such obviously Goidelic tribes as Querquerni. Now, as their pottery and brooches are admittedly related to the Jogassian—the contrast in burial practices is ignored—and as All Cannings Cross too is related to Jogassian, it follows that Iron Age A in England is also Goidelic. The linguistic memorials of this invasion would be names like Ὄρκάς (Orkney) and Κάντιον (Kent), supposedly dating back to the time of Pytheas. Pokorny even inclines to connect the Celticization of Ireland with an extension thither of the Hallstatt culture from England. But he admits the possibility that Ireland received its Goidelic population not only through Britain but also direct from Spain ; ' for immigrations from North Spain to Cornwall directly or through Brittany in VI–IV B.C. are today accepted as certain by most English prehistorians '(!)

A natural corollary is that Brythonic reached the British Isles first with Iron Age B—with the Yorkshire charioteers, Hawkes' Marnian raiders, and the multiple waves who left at last the Southwestern B culture.

What philologists will say to this scheme remains to be seen ; it is for

instance notorious that *Kantion* has been explained as Brythonic. From the archaeological standpoint the reconstruction here offered us by a German philologist whose knowledge of British relics must have been based mainly on literature, is to say the least intensely stimulating. But since it was composed, the rapid progress of prehistoric research has reduced its plausibility. Recent excavation has emphasized still further the profound impression left by the Iron Age A people on traditions of rural economy, military architecture, and textile equipment as well as potting in Britain, and the absence from Ireland of the relevant farm-buildings, methods of fortification and weaving appliances. The reviewer is accordingly struck by the disproportion between the traces of Goidelic speech in English toponymy and the influence exerted by the Iron Age A population on English culture and in the opposite sense by the virtual absence of Iron Age A from the classic land of Goidelic speech.

Perhaps too the treatment of the ' Urnfield people ' as the archaeological equivalent of the linguist's Illyrians should not pass unchallenged. By Pokorny the term is used primarily of the Lausitz population, then of those Austrian, Swiss and west German practitioners of urnfield burial who are generally supposed to have been led or stimulated by Lausitz colonists. While a Lausitz colonization of the lowlands of the southwest is really probable, it might still be questioned whether it were on a scale sufficient to affect the established speech. In any case Lausitz influence is more conspicuous in north Germany and Denmark than in the Tyrol or Bavaria. Pittioni brings out this fact very clearly in his appendix to Pokorny's article. The area in question being the heart of the Germanic province, it would of course have been a dangerous heresy to interpret the Lausitz forms here as evidences of an Illyrian invasion.

Then there are urnfield cultures in Hungary, generally assigned to the Middle Bronze Age (Toszeg C). They are not mentioned by Pokorny or Pittioni, though the latter speaks of the ' Urnfield influences ' (meaning Lausitz influence) on the Late Bronze Age urnfields of Hungary and traces it to the Balkans and Macedonia, where it might be plausibly connected with Illyrians. But how are the older urnfields related to Lausitz and to the north Alpine-Rhenish series ? Again the cemeteries attached to the Italian *terremare* are in fact urnfields ; indeed Pittioni accepts Leopold's thesis that their pottery is inspired by Lausitz traditions. So he rejects the once seemingly established identification of *terramaricoli* with Italici, ancestors of the Romans, and takes them for proto-Illyrians (*frühillyrisch*), and Pokorny himself agrees that the Italic languages became differentiated in Italy and were not introduced ready made. In fact to an archaeologist the Illyrian hypothesis seems to rest on rather speculative premises and, in view of the paucity of authentic linguistic documents, to lend itself to circular arguments. V. Gordon Childe.

GERASA: CITY OF THE DECAPOLIS. An account embodying the record of a joint excavation conducted by Yale University and the British School of Archaeology in Jerusalem (1928–30), and Yale University and the American Schools of Oriental Research (1930–1, 1933–4). *Edited by* CARL H. KRAELING. *pp.* XXXII, 616 *with* 143 *plates and* 47 *plans. New Haven, Connecticut: American Schools of Oriental Research*, 1938. 10 *dollars.*

The visible remains of Gerasa, known and discussed for more than a century, have long demanded a systematic publication based on the excavation of selected sites within the city. This was made possible through the collaboration of the Department of Antiquities of Transjordan with the learned Institutions responsible for the work carried out between 1928 and 1934. The report falls into two parts. The exploration of the classical city was limited to 'minor tasks . . . chosen with care and circumspection and . . . carried out systematically and thoroughly'. But 'the investigation of Christian Gerasa, particularly of her numerous churches . . . must be regarded as completed'. As will be seen the latter claim requires one qualification.

The origin of the city is uncertain but the name Gerasa, which is apparently Semitic, suggests a pre-Seleucid settlement, as it is older than the alternative, Antioch on the Chrysorhoas. A suggested Hellenistic foundation by Perdiccas rests on no sure basis and Professor Kraeling would prefer to connect the city with Antiochus IV. To this period he would ascribe the origin of the temple of Zeus, which is aligned not with the Roman city but with an earlier layout centred on 'Camp Hill'. Only scattered finds bear witness to these early days, and the new phase opened by Pompey's reorganization of 63 B.C., from which the city's era dates, is that revealed by the excavations. The first century A.D. was an age of prosperity and expansion. Inscriptions of 22–3 and 42–3 show that the Temple of Zeus was then in course of reconstruction. An ambitious city plan with colonnaded streets was adopted and fortifications incorporating the earlier temenos of Zeus were built. It is possible that these should be dated by an inscription of 66–7, but a certain *terminus ante quem* is given by the completion of the northwest gate in 75–6. The peace with Parthia, the expansion of Nabatean commerce and the deflection of trade due to the troubles in Palestine seem all to have contributed to this prosperity. The Roman annexation of 105 and the prolonged visit of Hadrian in 129–30 seemed to promise an even brighter future. A triumphal arch dedicated in the latter year and lying 460 metres south of the wall was designed as a gate in a projected extension of the city, a project which included the rebuilding of the gates. The main streets were widened and the original Ionic colonnades replaced with the Corinthian order about the middle of the century, and the existing

remains of the great temples of Zeus and Artemis were erected in the same generation. But the great extension was never completed, and although the late 2nd and 3rd centuries can show ornate public buildings like the Nymphaeum (191) and the ' plaza ' round the South Tetrapylon (293–305), the period was essentially one of decline which continued until the Renaissance of Christian Gerasa in the 5th century.

The historical conclusions outlined in the preceding paragraph are based upon the excavation of several of the buildings mentioned. Though the great Temple of Zeus could not be examined its historical development can be inferred from inscriptions and from the ' Forum ' leading up to the temenos. Accurate plans, and in many cases reconstructed drawings, illustrate the architecture of a provincial Roman city near the eastern frontier of the Empire, and a corpus of all the known inscriptions sheds light on many aspects of the city's life. Particular interest attaches to Temple C, erected about 150 near the centre of the city in an area previously part of the cemetery. Location and plan suggest a Heroön which is compared to the earlier example at Kalydon, and it is noted that access to the crypt continued when the superstructure was ruined by an earthquake about 250. A part of the Hippodrome, the Theatre at Birketein outside the walls and a small section of the necropolis were also explored, and chapters dealing with the coins and the glass are included.

The exploration of the eleven churches is admirably described by Mr J. W. Crowfoot. Nine are basilicas, one cruciform and one circular, each of the last two set within a square and with a projecting apse. The earliest is the cathedral with a spacious atrium where the miracle of the water turned into wine was annually re-enacted on the Feast of the Epiphany. This building, the centre of Christian Gerasa, is ascribed on technical grounds to *c.* 365. The majority, which are dated by building inscriptions or mosaics contemporary with their foundation, belong to the end of the 5th or the first half of the 6th century. The latest, the Church of Bishop Genesius, was erected in 611, a few years before the conquest by the Moslems, under whose rule the Christian community gradually decayed, a process reflected in the gradual collapse of the churches and the appropriation of the subordinate structures to secular uses. The report confesses that nothing is known of the origins of Christianity in Gerasa before 359, and there is no record of any attempt to explore the lower strata for remains that might go back beyond the Peace of the Church. With this exception we are given a comprehensive picture of the architectural history of the Church in this city, a picture which enables us to amplify and correct our conception of the development in Syria.

The first results to be considered relate to the planning. The preponderance of the basilica was to be expected but the demonstration that many of the

buildings were preceded by spacious atria runs contrary to the received opinion about Syrian churches. Later encroachment and insufficient exploration supply adequate reasons for the non-recognition of this feature on other sites. The differences in the planning of the Chancel are brought into relation with developments in ritual which resulted in the adoption of a plan designed for the celebration of a liturgy with the Little and Great Entrances as in modern orthodox churches. This arrangement appears only in the latest building (611, but see below), a date in accord with the adoption of this rite under Justin II (565–76). Connected with this development is the suggestion that the small chapel, with doors both to the Church and the atrium, is the Diakonikon referred to in several texts. This was a special building ' used for the inspection of the Eucharistic offerings '. It belongs to a ritual in use before the liturgy of the ' Entrances ', though its function would not necessarily cease with the introduction of that liturgy. Similar chapels are known in other Syrian churches but they are not as common as would be expected if they were really designed for so necessary a function (cf. the Syriac testamentum on p. 175). Nor is the evidence from Gerasa entirely consistent with this theory, for the chapel was only added to the cathedral at a late date (probably the second quarter of the 6th century) and it continues to be included in the plan of the Church of Bishop Genesius, a not particularly rich or elaborate building, which is stated to be designed for the liturgy of the ' Entrances '. Technically the workmanship is distinguished by the extensive employment of re-used material and by a sparing use of ornament other than mosaic. This last factor cannot be fully estimated, for only the pavements remain, and the decoration of the walls and domes which is known to have existed is no longer available. To a lesser extent the same is true of the architectural superstructure, though here the evidence is sufficient to provide restored sections of the three more important churches. One caution is necessary in using these plans. The convention adopted requires the isolation of buildings irrespective of date and not of masonry of different periods (cf. p. 241, note 19). The plan of the church of Bishop Genesius (pl. XXVIII) which suggests an architectural transept (cf. p. 182) does not entirely bear out the text (p. 250) which ascribes the piers to a columned iconostasis.

C. A. Ralegh Radford.

DANMARKS OLDTID. *By* Johannes Brøndsted. *Copenhagen: Gyldendal.* Vol. I, part 2, 3000 to 800 B.C.; vol. II, 800 to 400 B.C. (Review-analysis by D. Randall-MacIver; the first part was printed in the March (1940) number, pp. 88-91).

Part 2, chapter 1, 3000 to 2500 B.C. As seen in our perspective view the change from Old to New Stone Age may seem abrupt, but this is due to mistaken foreshortening. In Denmark the three old types of population, Ertebolle,

Gudenaa, Maglemose, continued their life of collecting and hunting, using implements which though improved were not wholly transformed. Thus the sharp-necked, two-sided, flint axe from Ertebolle sites of this time (fig. 76) is an evolution but not a new invention, and does not even drive out rougher forms. But it is significant that it soon develops into the highly perfected polished axe with the thin butt (figs. 84, 85). The felling of forests demanded a perfect instrument. A grave and a settlement site yield well dated pottery (figs. 78, 79), primitive, but with string-ornamentation. A peat-moss gives a wooden axe shaft associated with pottery (fig. 81). Most important of all some of the polished casts of grain, viz., Einkorn, Emmer, six-rowed barley. These are not indigenous but must have been introduced. Analysis of the various evidence does not suggest invasion but rather the gradual infiltration of a farmer people from south or southeast. There is no clear evidence of the use of domesticated animals in this first period.

Chapter 2, 2500–2300 B.C. Agriculture being now dominant settled dwellings will be the rule. A house has been found at Straadegaard in Zealand, and an entire little hamlet at Barkaer in Jutland (figs. 87–91). These houses were furnished, built of thick mud walls on stone bases. In them were found flint implements, pottery and bones of domesticated animals, viz., dog, ox, sheep, swine. Seven habitation-sites of this time are known (fig. 96). Society has apparently advanced to the stage of an organised religion, for deposits found in peat-mosses are interpreted as offerings to Gods ; these include fine axes and amber ornaments (figs. 94, 95).

Among the stone objects used by the farmers the battle-axe now appears for the first time. Its form (figs. 100 a and b) betrays that it is copied from a metal original. Even more conclusive as to a trade with central and southern Europe is the group of flat copper axes and triangular dagger from Bygholm (fig. 101).

Pottery has suddenly developed into new forms (fig. 102). Some bone implements from Brabrand near Aarhus (figs. 116–117) witness to the local survival of older industries. Dolmen-graves begin to appear. These will be best discussed in connexion with the next chapter.

Chapter 3, 2300–2000 B.C. The reviewer must here remark that the word *Dysse* (pl. *Dysser*) has a wider connotation in this volume than the English ' *Dolmen* ' by which it is often translated. ' Dolmens ' in the English sense are common in Denmark, but they are regarded as the surviving central chamber (properly *Dyssekammer*) of an originally more complex whole. For normally this chamber was surrounded by a ring of large stones and buried under an earthen mound.

If it contained only one chamber the *Dysse* was circular, if it contained more than one it was oblong (cf. figs. 112 and 143 with figs. 145, 146 ; see also 200

and 201). Various types of the central chamber are shown (figs. 110, 111, 114; see also 141, 142).

The majority of Dysser may be attributed to the period of this chapter. Dating is difficult but on the evidence of grave-goods, 57 examples are carried back to the time of chapter 2, thus making an earlier dolmen-period. In chapter 3 the further development of megaliths is seen in ' Giants Chambers ', *Jaettestuez*, illustrated by figs. 148, 149 which show the intact barrow as well as its passage-grave (details in figs. 151–157). It is well remarked that wood was evidently used to supplement stone in these structures.

Dwelling-settlements of the time are mapped in fig. 118; a type of house with pillars is noted at Troldebjerg. The more usual implements from dwellings are figured in 120–128, while fig. 140 shows a votive hoard of flint-axes. The pottery, strongly influenced by Danubian types, is shown in figs. 129–132.

The peaceful development of the farmers and of the surviving hunting peoples was suddenly interrupted by an invasion, the first wholesale irruption of a foreign people into Denmark. The evidence for this is given by the famous ' single-graves ' of Jutland. These graves are found in and under very low mounds, only one metre high, except when added to in later times. There are three or four distinct levels, not always found in combination, distinguished as ' underground ', ' surface ', ' above-ground ', and ' top ' graves. The contents of the several levels are generically the same; they belong to an identical people at different stages. Examples of ' underground graves ' are shown in figs. 163–7 and of ' surface graves ' in 178, 179. The distinguishing feature in all is the presence of a wholly new type of battle-axe (figs. 169–72 and 180) made of hard stones such as greenstone, porphyry, and granite. This battle-axe is the peculiar weapon of the ' string-pottery ' tribes, so that the invaders must be identified with one or other of their groups, known at this time to have been in central Germany, Poland, central Russia, and southwest Russia. Their path can be traced through Schleswig-Holstein. Evidently they met with such strong resistance in Zealand that in this period they could only establish themselves in Jutland (fig. 184).

Chapter 4, 2000–1800 B.C. The Battle-Axe folk had made their settlements chiefly at the expense of the original hunting tribes so that in the opening of this period the farmers retained most of their territory intact. It was the farmers who built the ' Giants Chambers ', they are the Jaettestues folk, distributed as in fig. 199. This is the finest time of their megalithic building (figs. 202–9). Their principal village-settlements are mapped in fig. 189; from the rubbish-heaps of these sites came the pottery and implements of figs. 192–8. Among these should be especially noted the thick-butted flint-axes and the imported objects of gold and copper.

Contemporary with the farmers, but at first confined to Jutland, are the newly arrived Battle-Axe folk, now at the second stage of their culture, which is represented by the second series of surface graves and particularly by the ' above-ground graves ' (Overgrav). Characteristic of this stage are a more evolved type of axe (fig. 215–7) and a new kind of pottery (figs. 218, 219). Dwelling-places have not been found. A distribution-map (fig. 224) shows virtually all Jutland to be in the conqueror's hands. In the course of 200 years, moreover, two more movements take place, which reinforce the Battle-Axe peoples from kindred tribes. One comes from Holstein and penetrates beyond Jutland to Zealand and the isles (figs. 225, 230); the other from Pommern-Brandenburg (evidenced by small stone cists, fig. 232), overran the isles and reaches Jutland from a fresh quarter. By the close of the period therefore the Jaettestues folk are sore beset from all sides.

Chapter 5, from 1800–1500 B.C. From one point of view this chapter might be considered almost an introduction to the second volume, yet for formal reasons it is the conclusion of the first, for in Denmark the Late Stone Age does not end till 1500 B.C. But this latest phase of it is really a ' disguised Bronze Age ', though poverty of raw materials in metal compels a continuance of the use of flint in new and rather inappropriate shapes.

A notable trait is the variety of burial-forms, most clearly seen in Jutland. The favourite type is interment in the upper stratum of some mound of an earlier age, a fact which strongly suggests continued occupation of identical sites. Indeed differences of date are proved only by the changed character of grave-goods and by the novel use of a layer or a low cairn of small stones within the mound (figs. 236–8). A second fairly popular type is the large cist (figs. 233–4); small cists are rare, and probably of different origin. A third type is the ' secondary ' interment in some ancient megalith. In the islands, as distinct from Jutland, there are four types, viz. (1) secondary burials in old megaliths; (2) burials on the open ground under low cairns; (3) burials in open ground with no superstructure; (4) stone cists. As to cists (type fig. 246) the author denies that they can be degenerations from any sort of passage-grave. The slab-cist (' Hellekiste ') is definitely the successor of the famous single-grave, and attributable to the same invading folk.

Of the objects found in graves the most important are weapons—wholly novel in character. The battle-axe has been displaced by the flint dagger, which is so universal that this is named the ' Dagger-period '. Though the author does not thus emphasize it we might safely say that the Danish flint-work is unequalled anywhere, or at any time, except by the finest products of Solutreans and pre-dynastic Egyptians. For sheer virtuosity study the lance in fig. 249 and the daggers in 251. The shapes of the daggers are copied from imported bronze

originals (cf. fig. 252). Stone battle-axes, rough and degenerate, occur occasionally; also stone working axes (fig. 259), closely imitating the contemporary bronze importations (fig. 260) of which many have been found, principally in depots. A certain number of bronze axes however are native Danish. In the domain of ornament there is much variety both of material and shape. Bone, tusks and teeth, amber, bronze, gold, are all employed in ornaments (fig. 256). Pottery is poor and uninteresting. Only one dwelling-house has been found, belonging to an early stage in the period (figs. 247–8).

A general review of the archaeological evidence shows that before the close of the Stone Age, the invading people of the 'string-pottery' culture had become a ruling aristocracy employing the older inhabitants as serfs and artisans.

Vol. 2, part 1, chapter 1, 1500–1300 B.C. The two great migration movements in Europe, those of the 'string-pottery' and the 'Beaker' peoples, are over. Their repercussions in Denmark have finished. It is a time of equilibrium, a ruling aristocracy controls and exploits a conquered lower class of agriculturists and artisans. The ruling class shows great ability in developing a widespread foreign trade, based upon the Danish virtual monopoly of amber. In its beginnings the Bronze Age is scarcely distinguishable from the latest Stone Age; grave-forms and implements have changed but little (cf. figs. 1, 2). The foreign types of weapons from Bohemia and Italy are still cleverly copied in stone (cf. fig. 4 with fig. 5), but all the inherited skill of the flint-worker cannot hide the inadequacy of the material so that the introduction of bronze-casting becomes inevitable. Early efforts at casting are shown in figs. 6, 8. The gradual development of the Paalstav from the older kind of working-axe is seen in fig. 7. Battle-axes take the form of fig. 9. In fig. 10 appear examples of the best indigenous bronze-work. Bronze ornaments are illustrated in fig. 11, but note that the fine bronze drum of fig. 13 comes not from Denmark but from southern Sweden.

Chapter 2, 1300–1000 B.C. is the 'Grand Period' ('*Stortid*') during which the Danish Bronze Age attains its zenith. Grave-forms have been reduced to one only, viz. the oblong cist of stone or wood laid on the surface of the ground. Over and around the cist is piled a layer of stones (figs. 19, 20) and over this again is raised an imposing mound of earth, the base of which is outlined by one or more rings of stones (figs. 22, 24). Such mounds vary from 2 to 8 metres in height, with a diameter of 12 to 40 metres. Mounds are almost incredibly numerous in the Danish landscape (figs. 14–16 and 27–35); some are earlier and some much later than this but a very large number belong to the Bronze Age. No traces of houses or settlements have been found but their distribution may be inferred from that of the graves (fig. 36). Most of the objects illustrated come from graves but some are from hoards and offering-places

(fig. 37). Stone cists are shown in figs. 39, 40; wooden cists in figs. 42, 43. For the latter the typical form is the hollowed trunk of an oak tree, to the chemical effect of which is due the marvellous preservation of men's and women's dress in several instances, illustrated in figs. 61–80. The costumes are minutely described and, like most objects in this chapter, will be very familiar. Weapons are shown in figs. 44, 49, 82; ornaments in figs. 50–55. Worthy of attention are the wooden vessels in fig. 56; the scarcity of pottery throughout Danish prehistory is probably due to a very general use of wooden receptacles. The drinking-horn (restored) in fig. 57, the folding-stool of Egyptian style in fig. 58, the Trundholm sun-carriage in fig. 59 are all famous. While foreign influences due to a far-flung trade are noticeably characteristic of the period, the author emphasizes the interesting fact that actual foreign imports are relatively few. In short the most salient and important feature of the period is the growth and development of a sturdy and independent Danish craftsmanship.

Chapter 3, 1000–800 B.C. In comparison with the 'Grand Period' these centuries seem to be a time of rather static quiet prosperity. The art of bronze-casting has now been completely mastered, its products are numerous and technically perfect, executed in the country itself. It is to be noted that the foreign technique of hand-hammering is never used, objects of beaten bronze or beaten gold are always imports. This highly developed civilization tends to become luxurious and over-refined. Weapons, no longer a necessity of life, become adjuncts of dress; swords are now works of art, sometimes merely parade weapons. The pretty little axes of fig. 37 are a mere reminiscence of grimmer times. Similarly in dress and ornament the same tendency is visible. New fashions may be seen in the men's armlets of twisted gold, and the women's bronze necklaces, bracelets, tutuli (figs. 91, 92, 95). Note also the bronze boxes (serving as 'reticules') strung on the women's girdles (figs. 93, 94). Burial customs are unchanged, except that cremation is beginning to creep in from neighbouring countries, but it is still rare. To avoid misconception observe that Kivik and Grünhof (figs. 97, 98, 101, 102) are not in Denmark, and fig. 105 is from Sweden, though fig. 106 is Danish. The remarkable bronze cauldron on wheels (fig. 108) is undoubtedly, as stated, an import from Italy.

The general review of the Earlier Bronze Age (pp. 122–52) contains excellent remarks on rock drawings. Those in Denmark are few and unimportant, the interesting examples are in southern Sweden. Many belong to the next period but as a whole they illustrate some aspects of all Bronze Age life, notably the use of ploughs, carts, sledges, and various weapons. It has been repeatedly demonstrated that they are not narrative or epic but simply magical and religious. In fig. 141 are a number of examples which show various rites in sun-worship, particularly the carrying of the sun-disk on a carriage or on a

ship. As confirmation of the wide diffusion of sun-worship in northern Europe these are valuable.

Vol. 2, part 2, chapter 1, 800–600 B.C. The Later Bronze Age is at once distinguished by the exclusive practice of cremation as the burial rite. Grave-goods consequently decrease in size, quantity and value, a loss which is fortunately offset by the increased number of rich votive deposits. Stages in the adaptation of the graves can be distinguished; the cist (figs. 145, 146, 152) is first much shortened and then entirely replaced by one or another small receptacle, which is generally but not always of pottery. No distinctive form of ossuary is employed, any household jug or jar will do. Sometimes enclosed in stones (figs. 148–50), it was more often buried in some part of an older mound (fig. 151). Of votive offerings the greater number were made by women; fig. 153 shows their bronze necklaces and bracelets. Foreign imports are common; obviously Italian for instance is the bronze vessel in fig. 156 (cf. also fig. 177). This bronze and the 7 foreign vessels of beaten gold with it is at least not later than 800 B.C.; two similar finds of gold are shown in fig. 157. The curious hoard of 100 little model boats of gold (fig. 159) is certainly of native origin but its date is under suspicion, the resemblance of type to the Nydam boat suggests rather that time. The five Danish swords of the 8th and 7th centuries are well-explained by figs. 162–4; other weapons and tools are given in fig. 166; razors, fibulae, pins, buttons, bone ornaments in figs. 167–71; women's bronze bracelets and reticules in figs. 172–3. The man's golden arm-ring in fig. 174 may be a token of honour. Figs. 175, 176 illustrate the famous warhorns ('Lurer'), of which no fewer than 31 have been found on Danish soil. They occur always in pairs and seem to be adapted rather for signalling than for musical performance (though I have heard three played together in a musical piece). Their potentialities however may have been under-estimated. A 'Lur' two metres long weighs about 3 kilos and is a complicated piece of mechanism; the cast bronze is only one millimetre thick, which is however too thick for the best resonance. Bronze shields are found for the first time in this period (figs. 178, 179). As no habitations are known the only pottery is that used for ossuaries in the graves (fig. 180); in these foreign influence may be detected. The biconical jar is interesting.

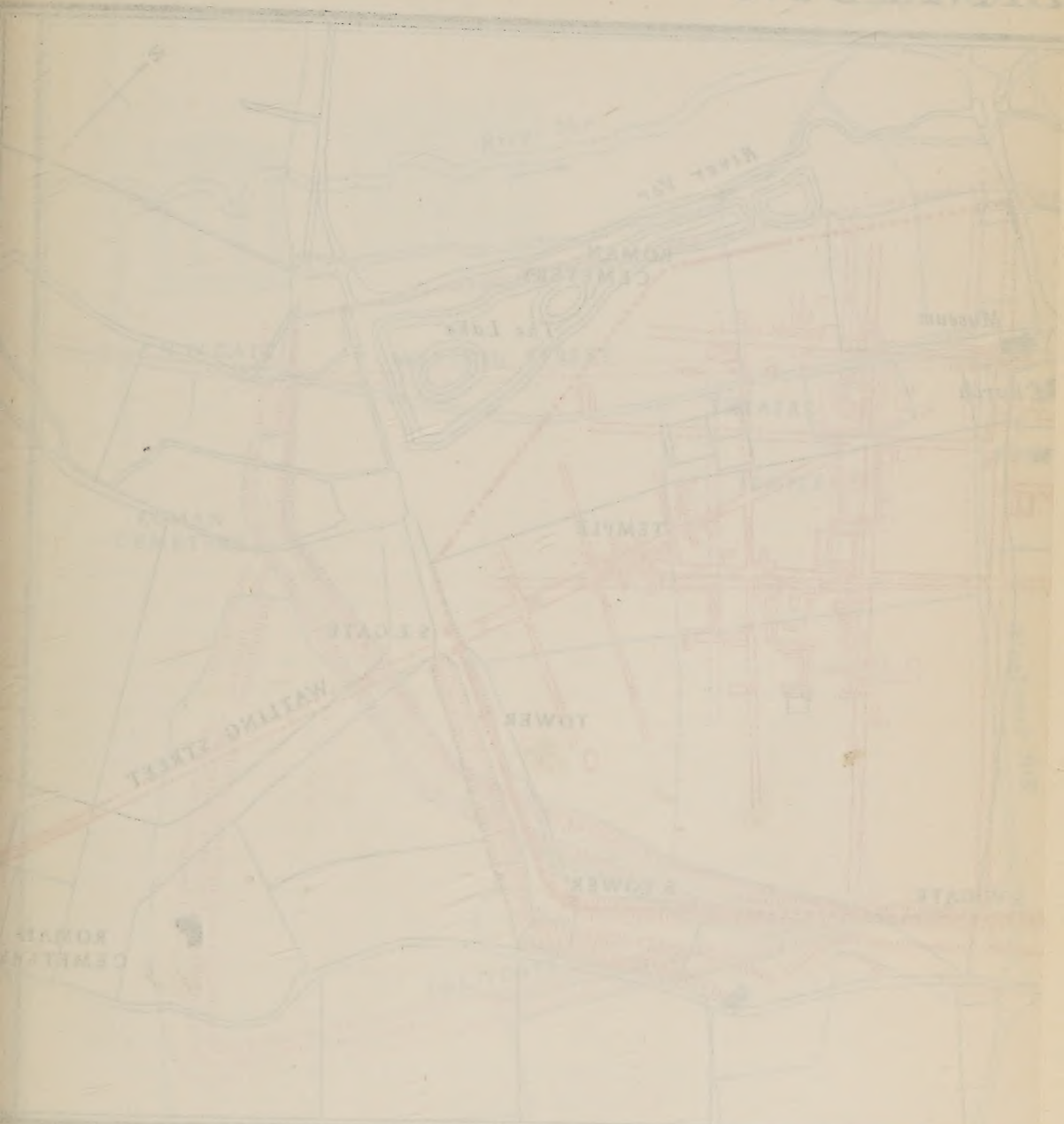
Chapter 2, 600–500 B.C. is the central and typical period of the Later Bronze Age; burial customs are precisely the same as in the preceding chapter (figs. 181, 183). As before it is to be noted that the ossuary is not invariably of pottery; wood was sometimes used. Figs. 185, 186 mark a digression, for though graves in the form of a ship outlined in stones occur in south Sweden, they are unknown in Denmark (except on distant Bornholm); moreover their date is uncertain. As in the last period the objects deposited with the dead are

normally few, but an occasional rich grave has been found. It is votive hoards which supply almost all the important specimens for study. Fig. 187 shows an offering enclosed in a wooden receptacle which was sunk in a spring—evidently a holy well. Other votive deposits occur frequently sometimes of single objects but more often of groups ; they are shown in the remaining illustrations. Fig. 196 is a distribution-map of the graves ; fig. 197 of the offering-places and hoards. It may be noted that some of the swords are of Danish workmanship (figs. 198 a, b, d and 199 a), but others are importations from abroad (figs. 198 c, 199 b and c). Influences from the neighbouring Hallstatt culture are very noticeable in all the implements and ornaments, but there is a strong background of native inspiration (which is much attenuated and almost fails in the next period). The small figures of men and women in figs. 210–14 may very possibly represent deities.

Chapter 3, 500–400 B.C. A careful study of this chapter leads me to the same conclusion which I reached in the museum itself at Copenhagen. The conclusion is that the material is too scanty, as well as too confused and contradictory to allow of any simple or easy treatment. Even Dr Brøndsted finds it hard to make bricks without straw. Instead of analyzing his text I shall offer one or two remarks of my own.

Except then for the continuity of burial-custom, cremation with urn-burial, there is little to link this period with that preceding. Finds are scarce, for the habit of providing rich sets of grave-goods has almost disappeared ; half of the 630 graves in Jutland are wholly without them. Most of the specimens therefore come from deposits or offering-places. They exhibit a notable variety of new forms (cf. figs. 222–32) strongly influenced by the neighbouring Hallstatt cultures. Weapons are almost absent, iron implements do not occur. The maps showing distribution will repay study ; from fig. 226, for instance it appears that Jutland has the great majority of the graves. The distribution of the German necklace called ' Wendelring ' is also interesting. The Elbe is evidently the chief artery of commerce but I doubt if this can justify assuming an Italian origin for face-urns (fig. 236) or hut-urns (figs. 238, 239). The dates, especially for hut-urns, are very different in Denmark and Italy. Moreover these are not typical products of Italy, where face-urns are confined to the small district of Chiusi, and hut-urns are found only in a part of Tuscany and the environs of Rome—not known as centres of export. It is wiser to connect these peculiar types of ossuary with the known equivalents in Schleswig and north Germany.

In the general review of the Later Bronze Age from p. 254 to the end are many interesting remarks which only lack of space forbids me to reproduce.



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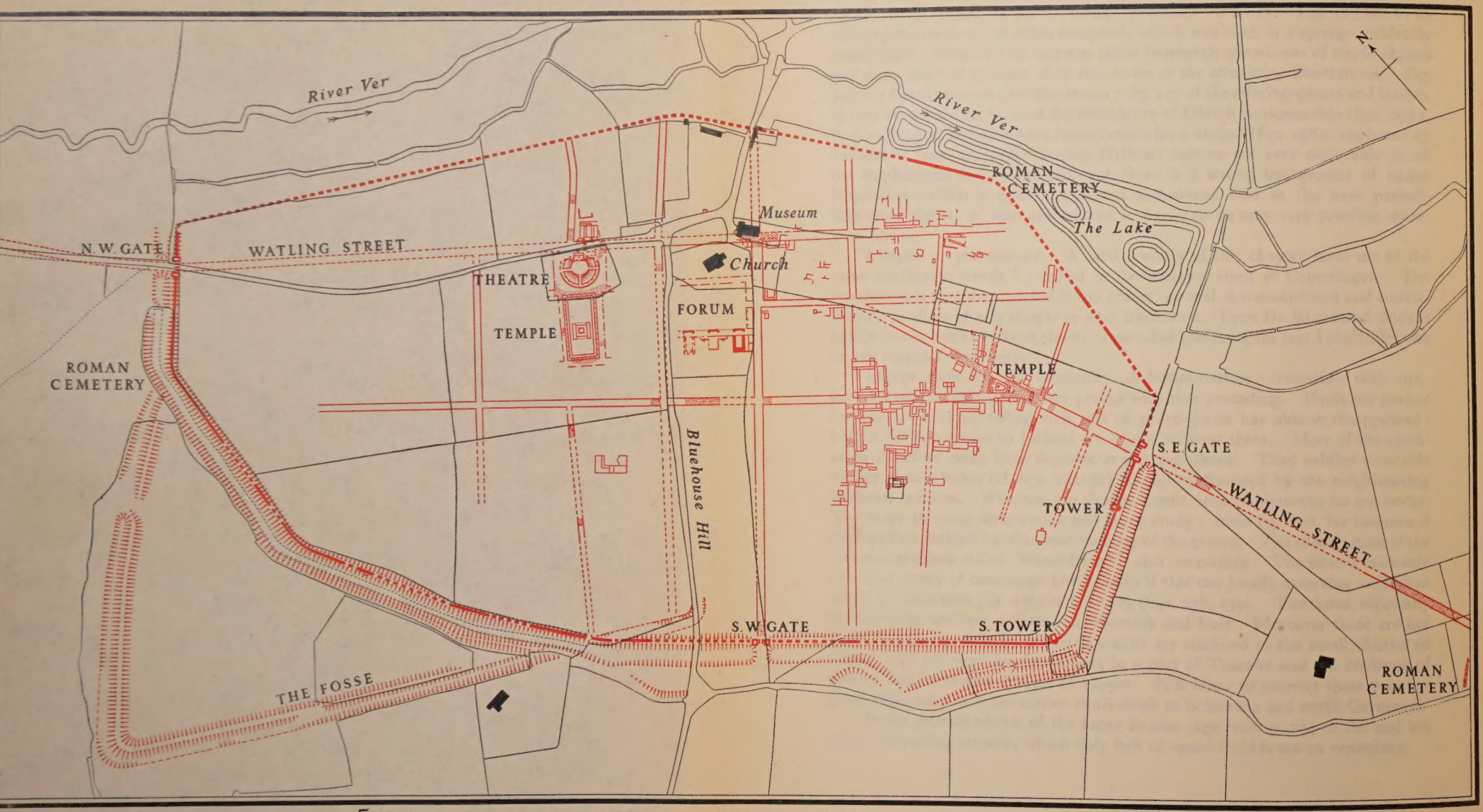

facing p. 113